CN50

Mobile Computer

User's Manual

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Version Number	Date	Description of Change
004	10/2010	Revised to support new software enhancements and Korean product certification.
003	4/2010	Added new CDMA radio activation procedures.
002	2/2010	Revised to support the new EA11 imager, 2.5G GPRS/EDGE radio, and increased RAM memory.

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Before You Begin

This section provides you with safety information, technical support information, and sources for additional product information.

Safety Information

Your safety is extremely important. Read and follow all warnings and cautions in this document before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

This section explains how to identify and understand warnings, cautions, and notes that are in this document.

A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.

A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.

Note: Notes either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.

Global Services and Support

Warranty Information

To understand the warranty for your Intermec product, visit the Intermec web site at **www.intermec.com** and click **Support** > **Returns and Repairs** > **Warranty**.

Disclaimer of warranties: The sample code included in this document is presented for reference only. The code does not necessarily represent complete, tested programs. The code is provided "as is with all faults." All warranties are expressly disclaimed, including the implied warranties of merchantability and fitness for a particular purpose.

Web Support

Visit the Intermec web site at **www.intermec.com** to download our current manuals (in PDF).

Visit the Intermec technical knowledge base (Knowledge Central) at **www.intermec.com** and click **Support** > **Knowledge Central** to review technical information or to request technical support for your Intermec product.

Telephone Support

In the U.S.A. and Canada, call **1-800-755-5505**.

Outside the U.S.A. and Canada, contact your local Intermec representative. To search for your local representative, from the Intermec web site, click **About Us** > **Contact Us**.

Service Location Support

For the most current listing of service locations, click **Support** >**Returns and Repairs** > **Repair Locations.**

For technical support in South Korea, use the after service locations listed below:

AWOO Systems
102-1304 SK Ventium
522 Dangjung-dong
Gunpo-si, Gyeonggi-do Korea, South 435-776
Contact: Mr. Sinbum Kang
Telephone: +82-31-436-1191
Email: **mjyun@awoo.co.kr**

IN Information System PTD LTD
6th Floor
Daegu Venture Center Bldg 95
Shinchun 3 Dong
Donggu, Daegu City, Korea
E-mail: **jmyou@idif.co.kr** or **korlim@gw.idif.co.kr**

Who Should Read This Manual

This manual is written for the person who is responsible for installing, configuring, and maintaining the CN50 Mobile Computer.

This manual provides you with information about the features of the CN50, and how to install, configure, operate, maintain, and troubleshoot it.

Before you work with the CN50, you should be familiar with your network and general networking terms, such as IP address.

Related Documents

This is a list of CN50-related Intermec documents.

- *Intermec Settings Command Reference Manual*
- *Intermec Developer Library (IDL) Resource Kit Developer's Guide*

The Intermec web site at **www.intermec.com** contains our documents (as PDF files) that you can download for free.

To download documents

1. Visit the Intermec web site at **www.intermec.com**.
2. Click the **Products** tab.
3. Using the **Products** menu, navigate to your product page. For example, to find the CN50 computer product page, click **Computers** > **Handheld Computers** > **CN50**.
4. Click the **Manuals** tab.

If your product does not have its own product page, click **Support** > **Manuals**. Use the **Product Category** field, the **Product Family** field, and the **Product** field to help you locate the documentation for your product.

Patent Information

Product is covered by one or more of the following patents:

4882476; 4894523; 4953113; 4961043; 4970379; 4988852; 5019699; 5021642; 5038024; 5081343; 5095197; 5144119; 5144121; 5182441; 5187355; 5187356; 5195183; 5216233; 5216550; 5195183; 5195183; 5218191; 5227614; 5233172; 5241488; 5243602; 5258606; 5278487; 5288985; 5308966; 5322991; 5331136; 5331580; 5342210; 5349678; 5359185; 5371858; 5373478; 5389770; 5397885; 5410141; 5414251; 5416463; 5442167; 5464972; 5468947; 5468950; 5477044; 5486689; 5488575; 5500516; 5502297; 5504367; 5508599; 5514858; 5530619; 5534684; 5536924; 5539191; 5541419; 5548108; 5550362; 5550364; 5565669; 5567925; 5568645; 5572007; 5576529; 5592512; 5594230; 5598007; 5608578; 5616909; 5619027; 5627360; 5640001; 5657317; 5659431; 5671436; 5672860; 5684290; 5719678; 5729003; 5742041; 5761219; 5764798; 5777308; 5777309; 5777310; 5786583; 5793604; 5798509; 5798513; 5804805; 5805807; 5811776; 5811777; 5818027; 5821523; 5828052; 5831819; 5834753; 5834749; 5837987; 5841121; 5842070; 5844222; 5854478; 5862267; 5869840; 5873070; 5877486; 5878395; 5883492; 5883493; 5886338; 5889386; 5892971; 5895906; 5898162; 5902987; 5902988; 5912452; 5923022; 5936224; 5949056; 5969321; 5969326; 5969328; 5979768; 5986435; 5987192; 5987499; 5992750; 6003775; 6012640; 6016960; 6018597; 6024289; 6034379; 6036093; 6039252; 6064763; 6075340; 6095422; 6097839; 6102289; 6102295; 6109528; 6119941; 6128414; 6138915; 6149061; 6149063; 6152370; 6155490; 6158661; 6164542; 6164545; 6173893; 6195053; 6234393; 6234395; 6244512; 6249008; 6328214; 6330975; 6345765; 6356949; 6367699; 6375075; 6375076; 6375344; 6431451; 6435411; 6484944; 6488209; 6497368; 6532152; 6538413; 6539422; 6621942; 6641046; 6681994; 6687403; 6688523; 6732930

There may be other U.S. and foreign patents pending.

1

Using the CN50

This chapter introduces the CN50 Mobile Computer with Windows® Mobile® 6.1. It also contains hardware and software configuration information to assist you in getting the most out of your computer. This chapter contains these topics:

- **Introducing the CN50 Mobile Computer**
- **Using the Battery**
- **Using the Keypad**
- **Adjusting the Volume of the CN50**
- **Using the Screen**
- **Understanding the Status LEDs**
- **Using the Imager**
- **Using the Color Camera**
- **Installing a microSD Card**
- **Enabling the Integrated GPS on the CN50**

Introducing the CN50 Mobile Computer

The Intermec CN50 Mobile Computer is a small, sleek, and stylish mobile computer built on the Microsoft® Windows® Mobile 6.1 operating system. The CN50 uses dual ARM processors to provide high throughput and is the first mobile computer with the latest High Speed Uplink Packet Access (HSUPA). The CN50 is also the first voice-enabled mobile computer that can be changed from a CDMA network to a GSM/UMTS network and back to CDMA.

CN50 Mobile Computer

Here are more great features of the CN50:

- A digital compass to enhance GPS navigation and improve geotagging of captured images.
- An accelerometer that can automatically sense the angle of the computer and rotate the display between portrait and landscape.
- The first 3 megapixel camera in a mobile computer.
- An area imager that supports reading bar codes, signature capture, and Enhanced Mobile Document Imaging (eMDI).

The CN50 Mobile Computer with an IEEE 802.11b/g radio installed is Wi-Fi® certified for interoperability with other 802.11b/g wireless LAN devices.

The CN50 is available with the following features:

- 3.75G UMTS/3.5G CDMA, 802.11b/g, and Bluetooth® radio
- 2.5 GPRS/EDGE radio
- 256 MB DRAM, 512 MB Flash (approximately 350 MB free for user applications)
- Customer-accessible micro-SD slot for removable memory cards up to 32 GB
- Imaging options:
  - EA21 area imager
  - EA11 area imager
- GPS receiver

Use this manual to understand how to use the CN50 and other features and options available on it.

Note: For information about the Mobile applications installed on the CN50, see the online Help. For additional information about using Windows Mobile on the CN50, visit Intermec Knowledge Central at **www.intermec.com**.

Using the Battery

The CN50 uses an AB24 standard battery or an AB25 extended battery as its main power source. The standard battery has a 7.2 Watt hour capacity, and the extended battery has a 14.4 Watt hour capacity. Several factors determine the life of your battery, such as display brightness, display timeout, input devices, extreme temperatures, and your usage.

You should fully charge the battery before you use the CN50. When you change the battery, it will automatically go into a power off state and then cold boot.

Warning

The battery used in this device may present a fire or chemical burn hazard if it is mistreated. Do not disassemble it, heat it above 100°C (212°F) or incinerate it. Dispose of used batteries promptly. Keep away from children.

Note: If the CN50 is not using external power and you remove the battery pack, the CN50 goes into a power off state.

Contact your Intermec representative for replacement batteries.

Charging the Battery

Make sure you fully charge the AB24 or AB25 battery before you use your CN50. You can charge the battery before or after you install it in the CN50. A fully discharged battery charges in approximately 4 (AB24) to 6 (AB25) hours.

Use the next table to understand how long it takes to charge your batteries in each of the CN50 charger or dock accessories.

Charging Times for CN50 Batteries

CN50 Charging Accessory	AB24 Charging Time	AB25 Charging Time
AD27 single dock charger	4 hours	6 hours
AC21 quad battery charger	4 hours	6 hours
AD23 charge-only multidock	4 hours	6 hours
AD24 Ethernet multidock	4 hours	6 hours
AE36 vehicle power adapter	4 hours	6 hours
AE37 AC adapter	4 hours	6 hours

The battery is fully charged when the battery status LED shows a steady green. For information on these accessories, see **"Accessories" on page 91**.

To charge the battery:

- Insert the battery into a quad battery charger, a single dock, or a multidock, or attach external power to the CN50 with the battery installed.

Changing the Battery

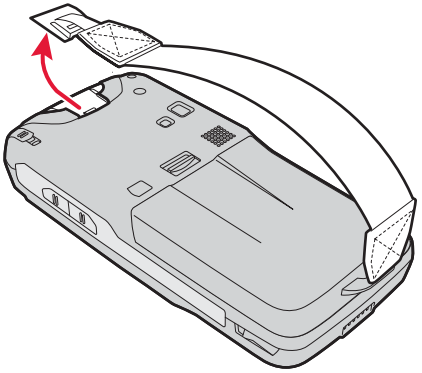
The CN50 resets when you remove the battery.

To change the battery:

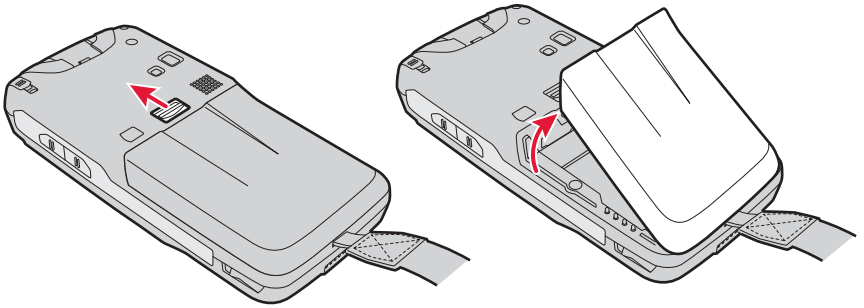
1 Save your files and close any open applications.

2 Shut down the CN50 by going to **Start > Programs > Shut Down**. For more information, see **"Warm Booting the CN50" on page 79**.

3 If necessary, disconnect the handstrap from the top of the CN50.



4 Push forward on the battery release tab until the battery releases, and then lift it away from the CN50.



5 Insert the bottom of a fully charged battery into the CN50, and press down on the top until it clicks into place.

6 If necessary, replace the handstrap.

Maximizing Battery Life

Batteries are chemical devices. If the batteries are left sitting on a shelf for long periods of time outside the CN50, the batteries slowly discharge, eventually to zero if left uncharged. The battery chemistry resists normal degradation if you store the battery in a charger as opposed to leaving the battery in a discharged state. See the following table for tips to maximize the life of your battery.

Battery Conservation Tips

When You Want To:	Do This to Save Battery Power:
Operate the CN50 and the Low Battery status icon appears or the Battery light comes on.	Save your data and then go to **Start** > **Programs** > **Shut Down**. After the CN50 shuts down, remove the battery and insert another fully charged battery. Or, you can connect the CN50 to an external power source.
Stop using the CN50 for 5 minutes or longer.	Make sure the low battery icon is not on the screen and that the Battery light is not turned on. Press ⏻ to suspend the CN50.
Store the CN50 for more than a day.	If you are storing the CN50 for a few days, such as over the weekend, install the charged battery or attach the CN50 to a power source. If you are storing the CN50 for longer, remove and charge the battery, then store both the battery and the CN50 in a cool location. If the battery in storage is not used in several months, you should recharge the battery to keep it at its performance peak.
Store the battery outside the CN50.	Store the batteries in a charger connected to power.

Understanding the Battery Status

A quick way to check the status of your battery is to look at the battery icon on the CN50 Status bar.

Battery Icon Status

Icon	Status
	Battery is fully charged.
	Battery has a medium charge. You should be able to work for several more hours before changing batteries.
	Battery is low. You need to replace or charge the battery soon.
	Battery is critically low. You need to replace or charge the battery now.
	Battery is charging.

Checking the Battery Status

The easiest way to check the status of your battery is to look at the battery icon on the status bar of your CN50.

Location of the Battery Status LED

The Battery Status LED above your CN50 display indicates the charging status of your battery

Understanding the Battery Status LED

LED State	Description
Steady green when the CN50 is connected to external power	The battery is fully charged.
Blinking red	The battery is low. CN50 goes into Suspend mode. Charge or replace the battery.

LED State	Description
Steady red when the CN50 is connected to external power	The battery is charging.
Steady amber	There is a battery error. The battery may be outside the allowable charging temperature or you may need to replace the battery.
Off	The CN50 is not on external power and the battery is operating normally.

Using the Keypad

Use the following sections to understand how to use the keypad. For information on remapping the keypad, you can download the Device IDL Resource Kit from the Intermec web site at **www.intermec.com/idl**.

The CN50 comes with either a numeric keypad or a QWERTY keypad. The QWERTY keypad is designed for applications that require primary input of alphabetic data. This keypad also provides special characters, numbers, symbols, and functions by pressing color-coded key sequences.

The numeric keypad is for applications that require mainly numeric data. This keypad also lets you enter special characters, including the alphabet, by pressing color-coded key sequences.

CN50 Numeric Keypad

CN50 QWERTY Keypad

Using the Power Button

When you press and hold the **Power** button (), you put the CN50 into suspend mode. In this lower power mode, the CN50 continues to supply power to all memory, but turns off power to most hardware such as the display. This power-saving feature is designed to prolong battery life.

Using the Color-Coded Keys

Each keypad provides color-coded keys to let you access additional characters, symbols, and functions printed on the keypad overlay. Once you understand how to use the color-coded keys and key sequences, you can access all of the additional features printed on the keypad overlay.

There are two color-coded modifier keys on the numeric keypad: the orange key and the green key. There is one orange color-coded modifier key on the QWERTY keypad.

Using the Color-Coded Keys

You Want to:	Press:	Example
Use an orange character or function printed above a key.	key (LED turns on) and then the key with the character or function printed above it.	On the CN50 QWERTY keypad, press and then to select the key.
Use a green character or function printed above a key.	key (LED turns on) and then the key with the character or function printed above it.	On the CN50 numeric keypad, press and then to select the function.

You Want to:	Press:	Example
Lock the green key to stay on.	once.	On the CN50 numeric keypad, press once. The green LED turns on and stays on.
Lock the orange key to stay on.	twice.	On the CN50 QWERTY keypad, press twice. The orange LED turns on and stays on.
Unlock the green or orange key.	or once.	Press or once to unlock the key. The LED turns off.

Capitalizing Characters

You can capitalize characters individually, or you can type all capital letters by enabling Caps Lock.

To capitalize a single character:

- On the QWERTY keypad, press the key, and the character.
- On the numeric keypad, press the key, and then the 1 key. Select the key with the letter you want to capitalize. Press 1 again to return to lowercase letters.

To enable Caps Lock:

- On the QWERTY keypad, press , then the key. Press again to disable the Caps Lock.
- On the numeric keypad, press 1.

To disable Caps Lock:

- On the QWERTY keypad, press the key again.
- On the numeric keypad, press 1 again.

For information on how to enter specific characters with keystrokes, see Appendix C, **"Keypads and Keystrokes" on page 99**.

Entering Characters on the Numeric Keypads

To enter letters on the numeric keypad, you need to press the key and the number key as many times as necessary to access the letter you need since each number key has one to four letters or functions.

To type a lower case Z:

- Press 9 9 9 9.

Adjusting the Volume of the CN50

You can adjust the computer volume for your needs and your environment. The volume includes sounds you hear when you tap the screen or scan bar codes with a scanner. You can set the volume to off, very low, low, medium, high, very high (default), and vibrate.

You can use the Volume application (available from the navigation bar) or the Volume buttons (on the side of the CN50) to change the volume of the computer.

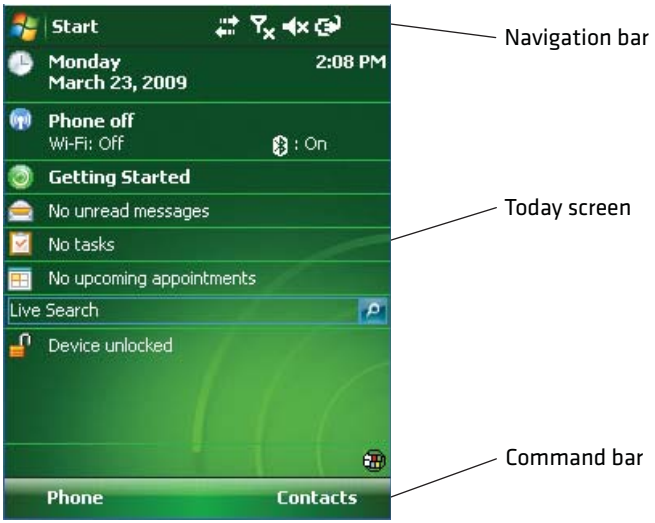
Location of Volume Buttons on the CN50

- To adjust the volume with the Volume application:
  - **a** Tap the Volume ( ) icon at the top of the screen.
  - **b** Use your stylus to adjust the volume slider to the volume you want, select **Vibrate,** or select **Off**.
- To adjust the volume with the Volume buttons:
  - Press the upper side button to increase the volume.
  - Press the lower side button to decrease the volume, set the volume to vibrate, or turn the volume off.

Using the Screen

The CN50 has a 240 x 320 pixel color touch screen display. The Windows Mobile 6.1 start screen has three distinct areas: the navigation bar, Today screen, and command bar.

Windows Mobile 6.1 Start Screen



Note: To help conserve battery power, you can change the amount of time that the screen backlight stays on. For help, see **"Configuring the Backlight"**.

To turn the screen backlight on and off:

- For the numeric keypad, press .
- For the QWERTY keypad, press .

Configuring the Backlight

By default, the CN50 goes into Screen Off mode when there is no activity on the computer. Screen Off mode turns off the backlight and display. Press a key or tap the screen to resume activity.

To configure the backlight:

1. Tap **Start** > **Settings** > **System** tab > the **Backlight** icon > the **Battery Power** tab.
2. With Turn off backlight if device is not used for checked, select the timeout value (30 seconds, or 1 to 5 minutes).

Using the Stylus

The CN50 has a stylus for selecting items and entering information on the touch screen.

Functions You Can Perform With the Stylus

Action	Description
Tap	Touch the screen once with the stylus to select options, open or close applications, or launch menus from the Command bar.
Drag	Hold the stylus on the screen and drag across the screen to select text and images.
Tap and hold	Tap and hold the stylus on an item to see a menu of actions available for that item. On the pop-up menu that appears, tap the action you want to perform.

Understanding the Screen Icons

Use the screen icons on the navigation bar and the command bar to see the network connection status and other system information. For information about the battery icons, see **"Understanding the Battery Status" on page 6**. Some standard Microsoft icons are included in this table.

Computer Screen Icons

Icon	Description
	The volume is turned off. To turn the volume back on, tap this icon and choose your setting.
	The computer is connected to the network.
	The computer is not connected to the network.

Icon	Description
	The 802.11 radio is connected to the wireless network.

Calibrating the Touch Screen

If the touch screen does not respond when you tap it with the stylus, you may need to calibrate the screen.

Note: If the touch screen is so out of alignment that you cannot open the Start menu, you can try to align the screen menu using the keypad. For help, see the next procedure.

To calibrate the touch screen:

1. Tap **Start > Settings > Systems (tab) > Screen**.
2. Tap **Align Screen** and follow the instructions to align the screen.
3. Tap **ok**.

Aligning the Touch Screen

If the touch screen is so out of alignment that you cannot open the **Start** menu, you may need to align the screen menu using only the keypad, or as a last resort you can perform a clean boot. For more information about performing a clean boot, see **"Clean Booting the CN50" on page 80**.

To align the touch screen using the keypad:

1. Press fn W (for the Start menu ⊞).
2. Press ▼ to select **Settings** and then press Enter.
3. Press Tab ⇆ until the Personal tab is selected.
4. Press fn ▶ to select the System tab.
5. Use the arrow keys to choose **Screen**, and then press Enter.
6. Tab to **Align Screen** and press Enter.
7. Follow the instructions to align the screen.
8. Tap **ok**.

Rotating the Screen

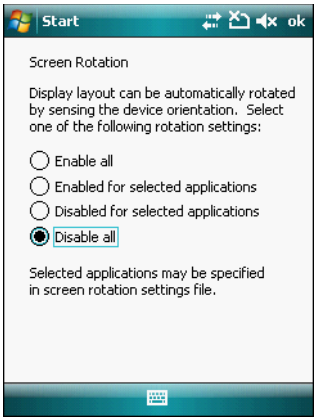
The internal accelerometer enables you to have the screen rotate by sensing the orientation of the CN50. You can enable the screen to rotate all the time depending on orientation, you can enable it to rotate for specific applications, you can disable rotation for selected applications, or you can disable it.

You can modify the screen rotation settings file to determine which applications will enable or disable screen rotation by modifying the settings.csv file in the \Windows folder.

Note: By default, when you select **Enabled for selected applications**, rotation is only enabled for Internet Explorer and Windows Media Player.

To configure the screen rotation:

1 Tap **Start** > **Settings** > the **Systems** tab > **Sensors**.


Start
ok
Screen Rotation
Display layout can be automatically rotated by sensing the device orientation. Select one of the following rotation settings:
Enable all
Enabled for selected applications
Disabled for selected applications
Disable all
Selected applications may be specified in screen rotation settings file.

2 Select the option you want to use.

Understanding the Status LEDs

The CN50 has four status LEDs.

Location of the CN50 Status LEDs

The next table describes the notification LED, Good Read LED, and key status LED. For information about the battery status LED, see **"Understanding the Battery Status" on page 6**.

Understanding the Status LEDs

LED	Color	Description
Notification	Orange	The CN50 is notifying you of a pending alarm or message.
Good Read	Green	The CN50 has successfully decoded a bar code.
Battery		See **"Checking the Battery Status" on page 7**.
Key Status	Green	Caps Lock is enabled if you have a QWERTY keypad. Green function keys are enabled if you have a numeric keypad.
	Amber	Amber function keys are enabled.

Using the Imager

The CN50 has two available area imagers, shown in the next table with the minimum bar code size supported by each imager

Minimum Bar Code Sizes

Imager	1D	2D
EA11	5 mil	5 mil
EA21	6 mil	10 mil

The area imagers can perform these tasks:

- Read bar codes, including 1D, 2D, and composite symbologies and postal codes. For more information, see **"Reading Bar Codes" on page 18**.
- Capture signatures. Use the imager to "photograph" signatures on business forms, or to capture onscreen signatures or line drawings. For more information, see **"Capturing Signatures" on page 19**.
- EA21 only: Perform document imaging of full business forms such as bills of lading or invoices. For more information, see **"Capturing Documents" on page 19**.

Understanding Bar Codes

The CN50 ships with an internal imager to read and enter bar code data. By default, these bar code symbologies are enabled on the CN50:

- Code 39
- Code 128/GS1-128
- DataMatrix
- EAN/UPC
- PDF417

If you are using bar code labels that are encoded in a different symbology, you need to enable the symbology on the CN50. To easily enable or disable symbologies, read one of the bar codes in the table called **"Symbology Bar Codes" on page 107**.

You can use EasySet to create configuration bar codes specific to your system. You can download a free copy of EasySet from the CN50 page on the Intermec web site at **www.intermec.com**.

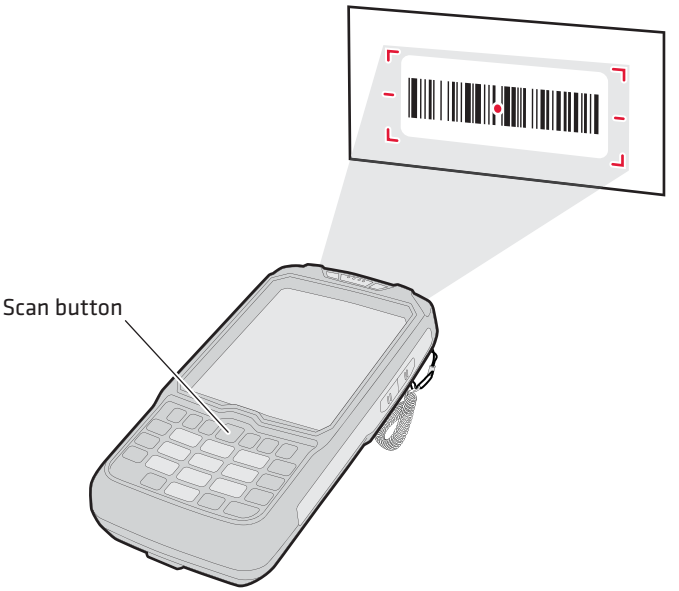
To develop an application you can use to configure the imager, use the Data Collection Resource Kit. The resource kit is part of the Intermec Developer Library (IDL) and can be downloaded from the Intermec web site at **www.intermec.com/idl**.

The area imager is equipped with a laser pointer to help you aim at bar codes, allow you to read 2D bar code symbologies, and support omni-directional (360°) scanning. Omni-directional scanning lets you position the CN50 in any orientation to read a bar code label.

Reading Bar Codes

This section describes how to use the CN50 imager to read bar codes.

1. Press ⏻ to turn on the CN50.
2. Point the scanner window at the bar code label, and hold the CN50 steady a few inches from the label.
3. Press the **Scan** button. The laser pointer and illumination beam and frame appear.



4. Use the laser pointer as a guide and aim toward the middle of the bar code. Make sure that the illumination frame covers the bar code you are trying to decode.

   When the CN50 successfully reads a bar code label, you hear a high beep, and the Good Read LED turns on briefly.
5. Release the **Scan** button.

Capturing Signatures

A signature capture is a grayscale image of a signature on paper or other business form. To use signature capture in your applications, use the SignatureCapture components in the Data Collection Resource Kit.

Ink capture is the process of saving an onscreen image, such as a signature or simple line drawing, to a file. To use ink capture in your applications, use the InkCapture components in the Mobile Gadgets Resource Kit.

Both Resource Kits are part of the Intermec Developer Library (IDL) which you can download from the Intermec web site at **www.intermec.com/idl**.

Capturing Documents

Intermec Enhanced Mobile Document Imaging (eMDI) is an image capture application that enables users to capture document images while in the field. This applications is only supported on the CN50 with an EA21 imager. Using the CN50, eMDI allows you to convert paper documents into document images that are saved on your mobile computer.

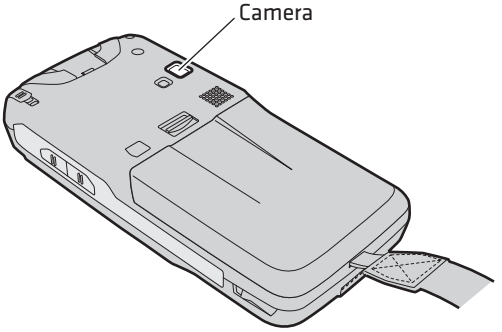
eMDI streamlines back-office operation and reduces data entry time because document images can be transmitted from the field to backoffice applications over wireless networks. With this, customer service and other staff gain real-time access to document images, via their enterprise systems, which can be used to answer customer queries, issue invoices, and update records.

You can download a full version of eMDI from the CN50 page on the Intermec web site at www.intermec.com. The eMDI application will place an "Intermec Demo" watermark on the captured documents until you purchase the eMDI Client Software License (P/N 454-025-001). For more information, contact your local Intermec representative. For more information on eMDI, see the **Intermec Enhanced Mobile Document Imaging User's Guide**.

Using the Color Camera

The high-quality 3.15 megapixel color camera with flash is a standard feature of the CN50. You can take photos in high, normal, or low quality, with image sizes up to 2048 x 1536 pixels. When you take a picture, the images are saved as .jpg files and stored in the /My Documents/My Pictures folder.

Location of the CN50 Color Camera



You can use the Pictures & Videos application on the CN50 to take, view, and edit pictures or record and launch video clips stored on the CN50 or a storage card. You can also send pictures and video clips to others or save an image as the background on the Today screen.

After you have opened up the camera application, you can configure camera options by tapping **Menu**.

Zooming On an Image

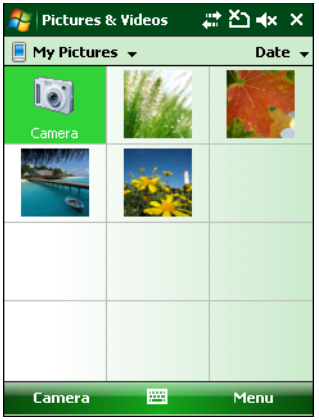
You can zoom in or out on an image while using either camera mode or video mode.

- Press ⊙ to zoom in and press ⊙ to zoom out.

Taking a Picture

You can use the built-in camera to take pictures.

1. Tap **Start > Programs > Pictures & Videos**.
2. Tap the **Camera** icon in the grid, or tap **Camera** on the taskbar.



3. Using the screen as a viewfinder, move the camera until you have the image you want to capture.
4. Tap **Take Pic** on the taskbar or press **Enter** to save the image. If you select to save your pictures to Main memory, they are saved to permanent storage on the CN50.

Switching to Video Mode

When you switch to video mode, the camera icon below the screen turns into a video camera and **Record** now appears in the taskbar.

To switch to video mode:

- Tap **Menu > Video Mode**.

Saving Picture Files

Pictures are automatically saved to the main memory on your CN50. You can save your picture to a different location, rename the file, and select a specific compression level. You can also set options for flash, video, quality, and some advanced options from the Settings menu.

To save picture files:

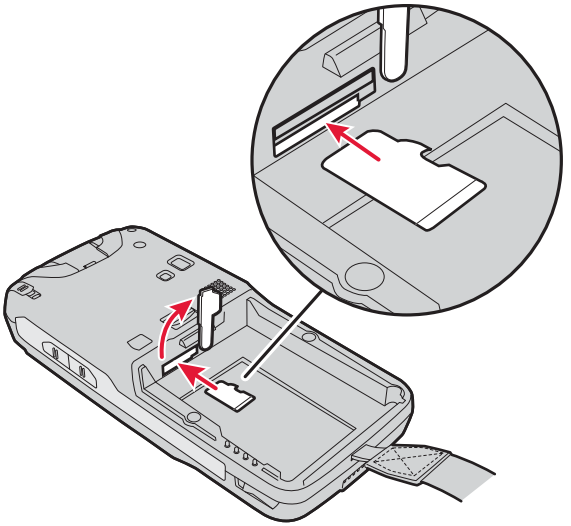
1. Tap **Menu > Settings**.
2. Select a file save location, type a filename prefix, and select a compression level. The default filename prefix is .img.
3. Tap **ok**.

Installing a microSD Card

You can use a micro Secure Digital (SD) card to increase file storage and install software. The CN50 supports an optional 32 GB maximum capacity microSD™ card. The microSD card slot is located in the battery compartment. For troubleshooting information, see **"Troubleshooting the CN50" on page 75**.

To install a microSD card:

1. Remove the battery. For help, see **"Changing the Battery" on page 4**.
2. Swing the card access door clockwise to expose the SIM card and microSD card slots.



3. Insert the microSD card in the bottom slot and push in with the stylus (or similar tool) until it clicks into place.
4. Install the battery.
5. Press ⏻ to turn on the CN50:

   You should be able to navigate to the Storage Card folder and see the contents of the microSD card.

Enabling the Integrated GPS on the CN50

The CN50 comes equipped with an integrated Global Positioning System (GPS) receiver. It can deliver standards-based National Marine Electronics Association (NMEA) data strings to GPS applications. Intermec recommends that you use the GPS Intermediate Driver (GPSID) instead of directly accessing the GPS hardware. The GPSID is a Microsoft software component that interacts between applications and the GPS hardware.

Using the GPSID allows Intermec support for Extended Ephemeris, which enhances GPS performance by:

- reducing the amount of time it takes your GPS receiver to acquire a fix.
- eliminating the need to obtain precise satellite data information from the GPS satellites.

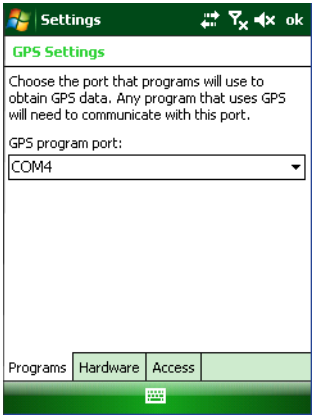
As a Microsoft software component, the GPSID also:

- allows multiple applications to simultaneously access the GPS data stream.
- provides access to GPS data without requiring applications to recognize and parse NMEA syntax.

Using the GPSID Installed on the CN50

To use the GPSID installed on your CN50, you need to configure the GPSID settings.

1. Tap **Start > Settings > System (tab)**.
2. Tap **External GPS**. The GPS Settings screen appears.



3 On the **Programs** tab, select the COM port that you want your programs to use to get GPS data from your CN50.

4 Tap the **Access** tab and select the **Manage GPS automatically** check box.

Settings
ok
GPS Settings
Windows Mobile manages access to your GPS device and allows multiple programs to obtain GPS data simultaneously. If you clear this check box, some programs may not be able to obtain GPS data.
Manage GPS automatically (recommended)
Programs
Hardware
Access

5 Tap **ok**.

Improving GPS Performance on the CN50

The integrated CN50 GPS module has three operating modes:

- Standalone-GPS
- Assisted GPS
- gpsOneXTRA™

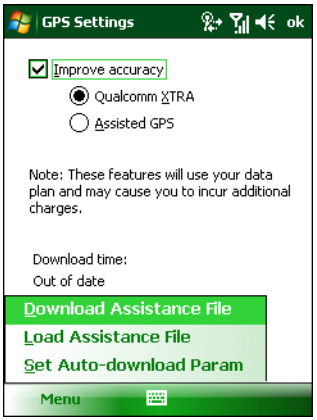
In Standalone mode, the CN50 GPS module relies solely on GPS satellites to determine position.

In Assisted GPS mode, the CN50 can determine position without receiving GPS signals directly from satellites; instead, the CN50 receives GPS signals and information provided by the cellular network. Even when the CN50 can receive a satellite signal, Assisted GPS can improve position accuracy and reduce the time to determine initial position (Time-To-First-Fix). Check with your cell phone carrier for availability and pricing for Assisted GPS service.

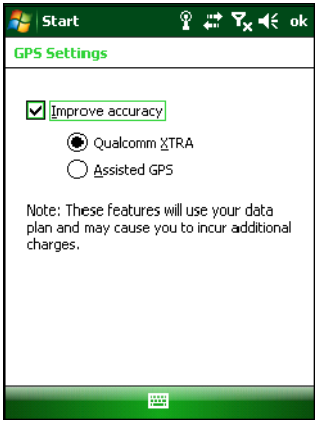
Qualcomm's gpsOneXTRA Assistance technology provides enhanced operation for Standalone-GPS. This option enables the CN50 to automatically download a small assistance data file from the XTRA servers through a brief internet access session.

To improve GPS performance:

1. Tap **Start > Settings > System (tab) > GPS Settings**.
2. Tap **Menu > Download Assistance File** to download a small assistance data file.



3. Select **Improve Accuracy** and choose an operating mode.


Start
ok
GPS Settings
Improve accuracy
Qualcomm XTRA
Assisted GPS
Note: These features will use your data plan and may cause you to incur additional charges.

2

Connecting and Configuring the CN50

Use this chapter to understand how to configure the CN50 to communicate in your network. This chapter contains these topics.

- **Configuring the CN50**
- **Managing the CN50 With SmartSystems Foundation**
- **Connecting to a PC**
- **Connecting to Your Network**
- **Managing Network Connections With iConnect**
- **Configuring Wireless Security**
- **Configuring the Phone**
- **Connecting to an ISP**
- **Connecting to a Network With a VPN Server**

Configuring the CN50

You can configure many parameters on the CN50 such as the bar code symbologies it decodes or the network settings. These characteristics are controlled by configuration parameters. The values you set for these configuration parameters determine how the CN50 operates.

There are several ways to configure the CN50:

- Directly on the CN50 using Intermec Settings. This allows you to change only the settings on that computer. For more information, see **"Using Intermec Settings Directly On the CN50" on page 29**.
- You can use the ScanNGo utility, which is part of SmartSystems™ Foundation, to quickly provide the CN50 with the minimal information necessary to connect to a secure network. For more information, see the next section **"Managing the CN50 With SmartSystems Foundation."**
- You can use a third party device management product that supports the CN50, such as the Microsoft System Center Mobile Device Manager. For more information, visit the Microsoft website at **http://msdn.microsoft.com/en-us/default.aspx**.
- You can use Imager Configuration Bar codes to enable or disable symbologies, reset to factory defaults, and set predefined imager modes. For more information, see **"Imager Configuration Bar Codes" on page 105**.

Managing the CN50 With SmartSystems Foundation

SmartSystems Foundation is a software platform that lets you manage all of your SmartSystems-enabled devices, including the CN50, simultaneously from a central server. The SmartSystems console displays all SmartSystems-enabled computers and peripherals in your network.

Through the Console, you can:

- drag-and-drop configuration bundles, operating system updates, and firmware upgrades to multiple computers.
- create a "golden" device configuration to use when updating other computers.

- remotely change settings on SmartSystems-enabled computers and peripherals.

With an AutoDeploy license, SmartSystems can automatically push software, configuration settings, and other files to connected CN50s. AutoDeploy can report on asset locations and battery status, making it easier to manage your mobile devices. The license also enables ScanNGo, which makes connecting additional CN50s to your secure wireless network as easy as reading bar codes.

You can download SmartSystems Foundation at no charge from the Intermec web site. For more information on SmartSystems, go to **www.intermec.com\SmartSystems**. To purchase an AutoDeploy license, contact your local Intermec sales representative.

Using Intermec Settings Directly On the CN50

You can use Intermec Settings on the CN50 to configure the computer and view system information.

To use Intermec Settings:

1 On the CN50, tap **Start > Settings > System > Intermec Settings**.

2 Tap a menu bar. A new menu or a list of configurable items appears.

3 In a list of configurable items, choose or change options by entering data in the entry fields or checking the appropriate check box.

   - To restore the default settings to all items in the current menu, tap **Menu > Restore Menu Defaults**. Tap **Yes** to clear the confirming message and restore menu defaults.
   - To restore all default settings, tap **Menu > Restore All Defaults**. Tap **Yes** to clear the confirming message and restore all defaults, which may take a few minutes.

4 Tap **Back** or to save your changes and go back to the previous screen. Tap to return to the main menu.

5 To close Intermec Settings, in the main menu tap ok or choose **Menu > Exit**.

   For more information on all parameters in Intermec Settings, see the **Intermec Settings Command Reference Manual**.

Hiding Menu Items in Intermec Settings

In Intermec Settings, you can hide items in the CN50 menus, or in the directory tree in the SmartSystems console. Hidden items are not saved when you back up your settings in the SmartSystems console.

In Intermec Settings in the SmartSystems console:

- To hide menu items, right-click a menu item and choose **Hide Menu Item** from the popup list. Click **Yes** to clear the confirming message.
- To restore menu items, click the CN50 name at the top of the directory tree to select it, and then choose **View > Unhide Items**. All hidden menu items are restored

In Intermec Settings on the CN50:

- To hide menu items, tap and hold the item, and then choose **Hide Menu Item** from the popup list. Tap **Yes** to clear the confirming message.
- To restore hidden items in a single menu, tap and hold the menu bar where the item was hidden, and then choose **Restore Item Default** from the popup list.
- To restore all hidden items in all menus, tap **Menu > Unhide All Items**.

Note: When you restore default settings in Intermec Settings, only the settings for visible items are restored to defaults. The settings for hidden menu items are not affected. For more information, see the SmartSystems Foundation online Help.

Connecting to a PC

You can use Microsoft ActiveSync to establish a connection between your CN50 and PC. ActiveSync lets you transfer files, synchronize files, remotely debug, and perform other device management activities. ActiveSync is a free application available from the Microsoft web site at **www.windowsmobile.com/getstarted**.

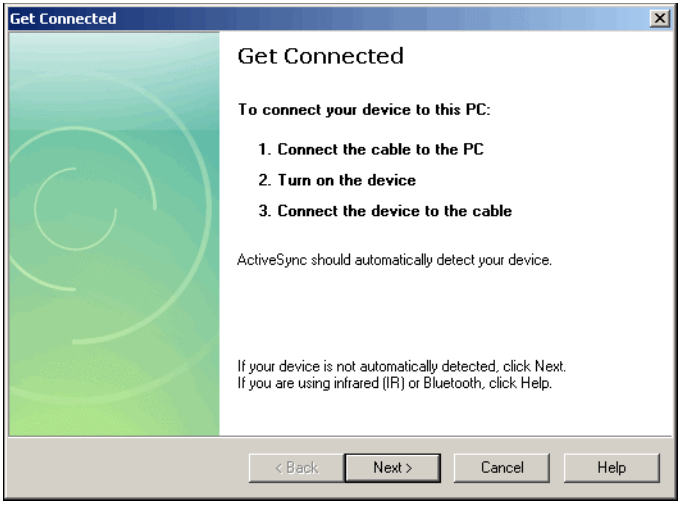
To establish an ActiveSync partnership between your CN50 and PC, you need to physically connect your CN50 to your PC using these accessories:

- CN50 AC adapter
- USB to micro-USB cable

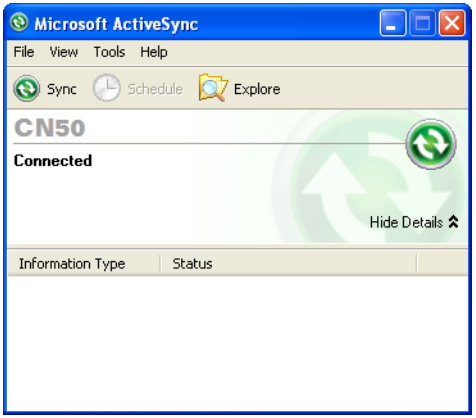
Establishing an ActiveSync partnership

Use the following procedure to establish an ActiveSync partnership.

1. Download ActiveSync from the Microsoft web site and install ActiveSync on your PC. When installation is complete, the Get Connected dialog box appears.


Get Connected
Get Connected
To connect your device to this PC:
1. Connect the cable to the PC
2. Turn on the device
3. Connect the device to the cable
ActiveSync should automatically detect your device.
If your device is not automatically detected, click Next.
If you are using infrared (IR) or Bluetooth, click Help.
< Back
Next >
Cancel
Help

2 Follow the onscreen instructions to establish a partnership. When the partnership is established, the Microsoft ActiveSync screen appears on your PC.



Connecting to Your Network

The CN50 is a versatile mobile computer that you can easily add to your wireless or wired data collection network. You can connect your CN50 using:

- 802.11 radio communications.
- Bluetooth communications.
- Ethernet communications.
- USB communications.

Connecting the CN50 Using 802.11 Radio Communications

Your CN50 has an 802.11 radio to transfer data using wireless communications. This section assumes that your wireless network is set up, including your access points.

To configure 802.11 radio parameters:

1. Tap **Start > Settings > Connections tab**.
2. Tap **Wi-Fi**. The Configure Wireless Network page appears.
3. If the network you want to connect to is available in the wireless networks list, tap the network name and proceed to Step 4.

   If the network you want to connect to is not in the wireless networks list:

   - Tap **Add New**.
   - In the **Network Name** field, type in the name of your network, then tap **Next**. The Configure Network Authentication page appears.

4. From the **Authentication** list, choose either **Open**, **Shared**, **WPA**, **WPA-PSK**, **WPA2**, or **WPA-PSK**.
   - If you choose **Open** or **Shared**, **Data Encryption** is automatically set to WEP and the key is automatically provided.
   - If you choose **WPA**, Data Encryption is automatically set to **TKIP**.
   - If you choose **WPA2**, Data Encryption should be set to **AES**.
   - If you choose **WPA-PSK**, **Data Encryption** is automatically set to TKIP and you need to enter a **Network key**.
   - If you choose **WPA2-PSK**, **Data Encryption** should be set to AES and you need to enter a **Network key**.
5. Tap **Next**.
6. For **EAP type**, select either **PEAP** or **Smart Card or Certificate** from the list and tap **Finish**. You return to the Configure Wireless Networks page.
7. Tap **Connect**. The CN50 prompts you to enter this network information:
   - User name
   - Password
8. Tap **OK**. Your device connects to the network.
9. Make sure that your CN50 is talking to the network and that the network can see your CN50. If you are connected to the wireless network you will see a connected icon ( ) in navigation bar and you will see the name of your network next to Wi-Fi in the Wireless Manager.

Connecting the CN50 Using Bluetooth Communications

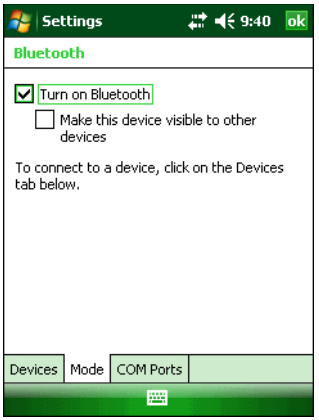
You CN50 is Bluetooth™-enabled, which lets you connect to other Bluetooth devices, such as printers.

You need to turn on the Bluetooth radio before you can discover and connect to other Bluetooth devices. By default, the radio is turned off.

To turn on the Bluetooth radio:

1. Tap **Start > Settings > Connections tab > Bluetooth > Mode tab**.

2 Tap the **Turn on Bluetooth** check box.



3 (Optional) To make the CN50 visible to other Bluetooth devices, tap **Make this device visible to other devices**.

4 Tap **OK**.

The Bluetooth radio maintains its state through a warm or cold boot and maintains virtual COM ports. But, if you clean boot your CN50 you need to recreate pairings to devices.

Connecting to a Bluetooth Scanner

You can connect to an Intermec Bluetooth scanner, such as the SF51 or SR61, by using the Wireless Scanning enabler.

To use the Wireless Scanning enabler:

1 Tap **Start > Settings > System tab > Wireless Scanning**.

2 Tap **Add Device**.

3 To add a scanner by scanning a bar code on the CN50:

   a Tap **Quick Connect** and then tap **Next**.
   b Scan the bar code with the scanner and then tap **Finish**.

   To search for scanners:

   a Tap **Search** and then tap **Next**. The CN50 looks for scanners, and the Bluetooth device names of found scanners appears in the list.
   b Tap the scanner device name in the list and then tap **Next**. The scanner is paired with the CN50.

4 To search for scanners:

   a Tap **Search** and then tap **Next**. The CN50 looks for scanners, and the Bluetooth device names of found scanners appears in the list.
   b Tap the scanner device name in the list and then tap **Next**. The scanner is paired with the CN50.

5 To manually add a scanner:

   a Tap **Manual** and then tap **Next**.
   b Enter the Bluetooth address of the scanner in the entry field.
   c Tap **Next**. The scanner is paired with the CN50.

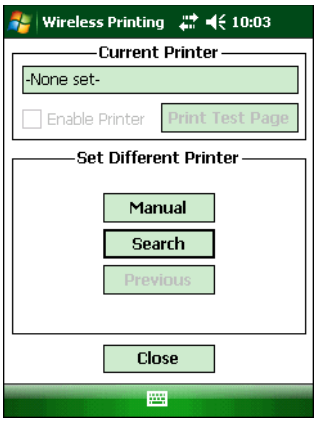
Connecting the CN50 to a Wireless Printer

To configure your CN50 for Bluetooth wireless printing, you need to:

- make sure Bluetooth power is on. For help, see the procedure in **"Connecting the CN50 Using Bluetooth Communications" on page 34**.
- create an application that opens the wireless printing COM port on your CN50. For help, see the Bluetooth Resource Kit, which is part of the Intermec Developer Library (IDL), available from the Intermec web site at **www.intermec.com/idl**.
- select the current wireless printer on the CN50. For help, see the next procedure.

To select the current wireless printer:

1 Select **Start > Settings > System** tab **> Wireless Printing.**



2 Tap **Search** to find a printer, or tap **Manual** to enter a device address. Follow the onscreen instructions to select the current wireless printer.

3 (Optional) Tap **Print Test Page**. The printer prints out the test page.

Note: You can also print wirelessly from inside your applications using Microsoft APIs with Bluetooth extensions for Winsock and Bluetooth virtual COM ports. For help, see the IDL which is available from the Intermec web site at **www.intermec.com/idl**.

Connecting the CN50 Using Ethernet Communications

You connect your CN50 to your Ethernet network with an ethernet cable and an AD24 Ethernet multidock or AD27 single dock with Ethernet adapter.

To use your CN50 in an Ethernet network:

1. Connect your CN50 to an ethernet network with an AD24. Ethernet communications is automatically enabled on your CN50.
2. Make sure that your CN50 is communicating with the network. You should see the network connection icon ( ) in the navigation bar.

Connecting the CN50 Using USB Communications

You can use the CN50 AC adapter to transmit data to and receive data from a desktop PC or an Ethernet multidock through USB communications. The USB port supports both USB client and USB host. The port automatically senses the cable you are using and determines which drivers to use. For more information about this accessory and how to order it, see **"Accessories" on page 91**.

Managing Network Connections With iConnect

After you configure 802.11 or Ethernet network settings, you can use the iConnect utility to:

- check the network connection status with a ping test
- change basic network parameters.
- Change Funk security profile settings.
- turn the 802.11 radio, Ethernet, phone, or Bluetooth radio on and off.

Turning a Network Connection on or off

Use the following procedure to turn a network connection on or off.

1. Tap the iConnect icon ( ) in the lower right corner of the Today screen.
2. Choose **Enable** and then choose a network connection from the list. A check mark next to the connection type indicates that the connection is enabled.

Configuring or Changing Wireless Security Profile Settings

Use the following procedure to configure or change wireless security profile settings.

1. Tap the iConnect icon ( ) in the lower right corner of the Today screen.
2. Choose **Tools > Wireless Settings**. The Profile Wizard appears.
3. Choose a profile from the Profile list and change settings as needed. For more information, see **"Selecting a Funk Security Profile" on page 42**.

Configuring or Changing Wireless or Ethernet Network Settings

Use the following procedure to configure or change wireless or Ethernet network settings.

1. Tap the iConnect icon ( ) in the lower right corner of the Today screen.
2. Do one of the following:
   a. Choose **Tools > Wireless IP Settings**.
   a. Choose **Tools > Ethernet IP Settings.**
3. Change settings as needed and click **ok**.

   A dialog box appears that shows the current settings for the wireless or Ethernet network adapter.

Checking the Connection Status with a Ping Test

Use the following procedure to check the connection status with a ping test.

1. Tap the iConnect icon ( ) in the lower right corner of the Today screen.
2. Choose **Tools > Ping Test**.
3. Choose **Ethernet** or **Wireless** from the connection type list.
4. Choose **Ping my gateway or DHCP server** if you are using DHCP. Or, choose **Ping the host address below** and enter the host address in the entry field.
5. Tap **Ping**. The ping test runs and checks your connection. If the connection is OK, "Connection Validated" appears.

Checking the Overall Connection Status

Use the following procedure to check the overall connection status.

1. Tap the iConnect icon ( ) in the lower right corner of the Today screen.
2. Choose one of the following:
   - **Status > Ethernet**
   - **Status > Wireless**

   A message box appears. iConnect checks these items in order:
   - Network connection (Ethernet or wireless) enabled
   - MAC address of the CN50 network adapter
   - MAC address of the associated host
   - IP address of the CN50
   - Ping Status
3. Tap **Try Again** to test the connection again.

   If you are having trouble with your wireless connection, you can use iConnect to verify available access points and networks, check signal strength, and view other diagnostics. For help, see **"Troubleshooting the CN50" on page 75**.

Note: If you choose **Exit iConnect** from the menu, the desktop icon disappears. To restore the iConnect desktop icon, warm boot the CN50.

Configuring Wireless Security

The CN50 provides four types of security for your wireless network:

- Wi-Fi Protected Access 2 (WPA2™)
- Wi-Fi Protected Access (WPA)
- 802.1x
- WEP

This section explains how to configure wireless security on your CN50. If you choose not to use security, see **"Disabling Security" on page 54**. Intermec recommends that you always implement security.

You must use either Funk or Microsoft security to implement your security solution. For details, see the next section, **"Choosing Between Microsoft and Funk Security" on page 41**.

If you are using WPA-802.1x, WPA2-802.1x, or 802.1x security, this section also assumes that your authentication server and authenticators are properly configured.

Note: Your security choice does not depend on your authentication server. For example, you can choose Funk security if you use Microsoft Active Directory® to issue certificates.

Choosing Between Microsoft and Funk Security

The CN50 supports both Funk and Microsoft security, which dynamically select wireless networks based on your preferences. The option you choose depends on your network security needs.

- If you are using the CN50 in a static environment that requires a high level of security, you should use Funk security, which offers

support for LEAP and TTLS and configuration for up to four profiles.

- To use Funk security, you need to select a profile. For help, see the next section, "Choosing Between Microsoft and Funk Security."
- If you are primarily using the CN50 to connect to WiFi hotspots, you may want to use Microsoft security.

  To use Microsoft security, you need to select it as your security choice. For help, see **"Selecting Microsoft as Your Security Choice" on page 46**.

Selecting a Funk Security Profile

You can define up to four profiles for Funk security. Different profiles let your CN50 communicate in different networks without having to change all of your security settings. For example, you may want to set up one profile for the manufacturing floor and one for the warehouse. By default, the active profile is Profile 1.

Note: You can also use the Profile Wizard to configure most wireless security settings. To start the Profile Wizard, tap the iConnect icon in the lower right corner of the Today screen and select **Tools > Wireless Settings**.

Selecting a Funk Security Profile

Use the following procedure to select a Funk security profile.

1. Start Intermec Settings.
2. Choose **Communications > 802.11 Radio > Funk Security**.
3. Choose a profile. A list of configurable settings appears.
4. (Optional) In the **Profile Label** text box, enter a meaningful name for your profile.
5. Configure your security settings. For help, see the next sections.
6. Repeat Steps 3 through 5 for each profile you want to define.
7. Set an active profile by choosing it in the **Active Profile** list.
8. Save your settings.

Configuring WPA Security With Funk Security

Use these procedures to set WPA-802.1x, WPA2-802.1x, WPA-PSK, or WPA2-PSK security on your CN50 with Funk security.

1. Make sure the communications and radio parameters on your CN50 are configured.
2. Make sure Funk is selected as your security choice.
3. Start Intermec Settings.
4. Choose **Communications > 802.11 Radio > Funk Security**.
5. Select the profile you want to configure.
6. For **Association**, choose **WPA** or **WPA2**. Encryption automatically defaults to **TKIP** or **AES**, respectively.
7. For **8021x**, choose **TTLS**, **PEAP**, **EAP-FAST**, or **TLS**.
8. If you choose **TTLS** or **PEAP**:
   a. For **Prompt for Credentials**, choose **Enter credentials now**.

Note: You can use **Prompt for Credentials** to troubleshoot your network connection.

   b. Enter a **User Name** and **User Password**.
   c. For **Validate Server Certificate**, choose **Yes**.

Note: The correct date must be set on your CN50 when you enable **Validate Server Certificate**.

9. If you choose TLS:
   a. Load a user and root certificate on your CN50. For help, see **"Loading a Certificate" on page 53**.
   b. Enter a **User Name** and **Subject Name**.
   c. For **Validate Server Certificate**, choose **Yes**.
   d. (Optional) To increase your level of security, enter a **Server 1 Common name** and a **Server 2 Common name**.

Configuring WPA or WPA2 with Funk Security

Use the following procedure to configure WPA or WPA2 with Funk security.

1. Make sure the communications and radio parameters on your CN50 are configured.
2. Make sure Funk is selected as your security choice.
3. Start Intermec Settings.
4. Choose **Communications > 802.11 Radio > Funk Security**.
5. Select the profile you want to configure.
6. For **Association**, choose **WPA** or **WPA2**.
7. For **8021x**, choose **None**.
8. For **Pre-Shared Key**, enter the pre-shared key or passphrase.

   The pre-shared key must be a value of 32 hex pairs preceded by 0x for a total of 66 characters. The value must match the key value on the access point. The passphrase must be from 8 to 63 characters. After you enter a passphrase, the CN50 internally converts it to a pre-shared key. This value must match the passphrase on the authenticator.
9. Save your settings.

Configuring 802.1x Security With Funk Security

Use the following procedure to configure 802.1x security with Funk security.

1. Make sure the communications and radio parameters on your CN50 are configured.
2. Make sure Funk is selected as your security choice.
3. Start Intermec Settings.
4. Choose **Communications > 802.11 Radio > Funk Security**.
5. Select the profile you want to configure.
6. For **Association**, choose **Open**.
7. For Encryption, choose **WEP**.

8 For **8021x**, choose **TTLS**, **PEAP**, or **TLS**.

9 If you chose **TTLS** or **PEAP**:

   a Enter a **User Name**.
   b For **Prompt for Credentials**, choose **Enter credentials now**.

Note: You can use **Prompt for Credentials** to troubleshoot your network connection.

   c Enter a **User Password**.
   d For **Validate Server Certificate**, choose **Yes**.

10 If you choose **TLS**:

   a Load a user and root certificate on your CN50. For help, see **"Loading a Certificate" on page 53**.
   b For **Validate Server Certificate**, choose Yes.
   c Enter a **User Name** and **Subject Name**.
   d (Optional) To increase your level of security, enter a Server 1 Common name and a Server 2 Common name.

11 (Optional) To increase your level of security, enter a **Server 1 Common name** and a **Server 2 Common name**.

12 Save your settings.

Configuring LEAP Security

Use the following procedure to configure LEAP security.

1 Make sure the communications and radio parameters on your CN50 are configured.

2 Make sure Funk is selected as your security choice.

3 Start Intermec Settings.

4 Choose **Communications > 802.11 Radio > Funk**.

5 Select the profile you want to configure.

6 For **8021x**, choose **LEAP**.

7 For **Association**, choose **Open**, **WPA**, **WPA2**, or **Network EAP**. Encryption automatically defaults to **TKIP** if you choose **WPA**,

AES if you choose **WPA2**, and **WEP** if you choose Open or Network EAP.

8. For **Prompt for Credentials**, choose **Enter credentials now**.
9. Enter a **User Name** and **User Password**.
10. Save your settings.

Configuring Static WEP Security With Funk Security

Use the following procedure to configure static WEP security with Funk.

1. Make sure the communications and radio parameters on your CN50 are configured.
2. Make sure Funk is selected as your security choice.
3. Start Intermec Settings.
4. Choose **Communications > 802.11 Radio > Funk Security**.
5. Select the profile you want to configure.
6. For **Association**, choose **Open**.
7. For **Encryption**, choose **WEP**.
8. For **8021x** choose **None**.
9. Define a value for the keys you want to use. You can define up to four keys (**Key 1** through **Key 4**).

   Enter an ASCII key or a hex key that is either 5 bytes or 13 bytes long depending on the capability of the radio. Set a 5- byte value for 64-bit WEP or a 13-byte value for 128-bit WEP. Hex keys must be preceded by 0x and contain 5 or 13 hex pairs.
10. For **Transmit key**, choose the key you want to use for transmitting data.
11. Save your settings.

Selecting Microsoft as Your Security Choice

The default security setting is Funk. If you want to use Microsoft security, you need to select it as your security choice. After you select Microsoft as your security choice, you will be prompted to save your settings and reset your CN50 for your change to take effect.

With Microsoft as your security choice, you can configure:

- WPA
- 802.1x
- Static WEP

Selecting Microsoft Security

Use the following procedure to select Microsoft security.

1. Start Intermec Settings. For help, see **"Configuring the CN50" on page 28**.
2. Choose **Communications > 802.11 Radio > Security Choice**.
3. From the **Security Choice list**, select **Microsoft Security**. An alert box appears telling you that you must save your settings and warm boot the CN50 for the new security choice to take effect.
4. Choose **Yes**. The CN50 resets and starts with Microsoft Security as the Security Choice.

Configuring WPA Security With Microsoft Security

Use these procedures to set WPA-802.1x and WPA-PSK security on your CN50 with Microsoft security

1. Make sure the communications and radio parameters on your CN50 are configured.
2. Start Intermec Settings.
3. Choose **Communications > 802.11 Radio > Microsoft Security**.
4. For **Infrastructure Mode**, choose **Infrastructure**.
5. For **Network Authentication**, choose **WPA**. Data Encryption automatically defaults to **TKIP**.
6. For **802.1x Authentication**, choose either **MD5**, **TLS**, or **PEAP**.
7. If you choose **TLS**:
   a. Choose **Properties > Run App**. The Auth. Settings dialog box appears.
   b. Choose **Select**.

c Select your certificate from the list and press **Enter**. The User Logon dialog box appears.

d Enter a **User Name** and **Domain** and press **Enter**.

8 If you choose PEAP:

a Choose **Properties > Run App**. The Auth. Settings box appears.

b Choose **Validate Server** and press **Enter**. When the radio starts to authenticate, the Network Password dialog box appears.

c Enter a **User Name** and **Password** and select **Save Password**.

d (Optional) In the **Domain** field, enter the Active Directory domain associated with the user account.

9 Save your settings.

Enabling WPA-PSK With Microsoft Security

Use the following procedure to enable WPA-PSK With Microsoft Security.

1 Make sure the communications and radio parameters on your CN50 are configured.

2 Start Intermec Settings.

3 Choose **Communications > 802.11 Radio > Microsoft Security**.

4 For **Infrastructure Mode**, choose **Infrastructure**.

5 For **Network Authentication**, choose **WPA-PSK. Data Encryption** automatically defaults to **TKIP**.

6 For **Pre-Shared Key**, enter the pre-shared key or the passphrase.

The pre-shared key must be a value of 32 hex pairs preceded by 0x for a total of 66 characters. The value must match the key value on the authenticator. The passphrase must be from 8 to 63 characters. After you enter a passphrase, the CN50 internally converts it to a pre-shared key.

7 Save your settings.

Configuring 802.1x Security with Microsoft Security

Use the following procedure to configure 802.1x security with Microsoft security.

1. Make sure the communications and radio parameters on your CN50 are configured.
2. Start Intermec Settings.
3. **Choose Communications > > 802.11 Radio > Microsoft Security**.
4. For **Infrastructure Mode**, choose **Infrastructure**.
5. For **Network Authentication**, choose **Open**.
6. For **Data Encryption**, choose **WEP**.
7. For **802.1X Authentication**, choose **TLS** or **PEAP**.
8. If you choose TLS:
   a. Choose **Properties > Run App**. The Auth. Settings box appears.
   b. Choose **Select**.
   c. Select your certificate from the list and press **Enter**. The User Logon dialog box appears.
   d. Enter a **User Name** and a **Domain**.
9. If you choose PEAP:
   a. Choose **Properties > Run App**. The Auth. Settings box appears.
   b. Select **Validate Server** and press **Enter**. When the radio starts to authenticate, the Network Password dialog box appears.
   c. Enter a **User Name** and **Password** and select **Save Password**.
   d. (Optional) In the **Domain field**, enter the domain.
   e. Press **Enter**.
10. For **Network Key Setting**, choose **Automatic**.
11. Save your settings.

Configuring Static WEP Security With Microsoft Security

Use the following procedure to configure static WEP security with Microsoft security.

1. Make sure the communications and radio parameters on your CN50 are configured.
2. Start Intermec Settings.
3. Choose **Communications > > 802.11 Radio > Microsoft Security**.
4. For **Network Authentication**, choose **Open**.
5. For **Network Authentication**, choose **WPA**. Data Encryption automatically defaults to **TKIP**.
6. For **802.1x Authentication**, choose either **MD5**, **TLS**, or **PEAP**.
7. If you choose TLS:
   a. Choose **Properties > Run App**. The Auth. Settings dialog box appears.
   b. Choose **Select**.
   c. Select your certificate from the list and press Enter. The User Logon dialog box appears.
   d. Enter a **User Name** and **Domain** and press **Enter**.

   If you choose PEAP:
   e. Choose **Properties > Run App**. The Auth. Settings box appears.
   f. Choose **Validate Server** and press **Enter**. When the radio starts to authenticate, the Network Password dialog box appears.
   g. Enter a **User Name** and **Password** and select **Save Password**.
   h. (Optional) In the **Domain** field, enter the Active Directory domain associated with the user account.
8. Save your settings.

Enabling WPA-PSK with Microsoft Security

Use the following procedure to enable WPA-PSK with Microsoft security.

1. Make sure the communications and radio parameters on your CN50 are configured.
2. Start Intermec Settings.
3. Choose **Communications > 802.11 Radio > Microsoft Security**.
4. For **Infrastructure Mode**, choose **Infrastructure**.
5. For **Network Authentication**, choose **WPA-PSK**. Data Encryption automatically defaults to **TKIP**.
6. For **Pre-Shared Ke**y, enter the pre-shared key or the passphrase.

   The pre-shared key must be a value of 32 hex pairs preceded by 0x for a total of 66 characters. The value must match the key value on the authenticator. The passphrase must be from 8 to 63 characters. After you enter a passphrase, the CN50 internally converts it to a pre-shared key.

   This value must match the passphrase on the authenticator.
7. Save your settings.

Configuring 802.1x Security with Microsoft Security

Use the following procedure to configure 802.1x security with Microsoft.

1. Make sure the communications and radio parameters on your CN50 are configured.
2. Start Intermec Settings.
3. Choose **Communications > 802.11 Radio > Microsoft Security**.
4. For **Infrastructure Mode**, choose **Infrastructure**.
5. For **Network Authentication**, choose **Open**.
6. For **Data Encryption**, choose **WEP**.
7. For **802.1X Authentication**, choose **TLS** or **PEAP**.

8. If you choose TLS:
   a. Choose **Properties > Run App**. The Auth. Settings box appears.
   b. Choose **Select**.
   c. Select your certificate from the list and press **Enter**. The User Logon dialog box appears.
   d. Enter a **User Name** and a **Domain**.

   If you choose PEAP:
   e. Choose **Properties > Run App**. The Auth. Settings box appears.
   f. Select **Validate Server** and press **Enter**. When the radio starts to authenticate, the Network Password dialog box appears.
   g. Enter a **User Name** and **Password** and select **Save Password**.
   h. (Optional) In the **Domain** field, enter the domain.
   i. Press **Enter**.
9. For **Network Key Setting**, choose **Automatic**.
10. Save your settings.

Configuring Static WEP Security With Microsoft Security

Use the following procedure to configure static WEP security with Microsoft security.

1. Make sure the communications and radio parameters on your CN50 are configured.
2. Start Intermec Settings.
3. Choose **Communications > 802.11 Radio > Microsoft Security**.
4. For **Network Authentication**, choose **Open**.
5. For **Data Encryption**, choose **WEP**.
6. For **Network Key Setting**, choose **Enter Key and Index**.

7 For **Network Key Value**, enter an ASCII key or a hex key that is either 5 bytes or 13 bytes long depending on the capability of the radio.

   Set a 5-byte value for 64-bit WEP or a 13-byte value for 128-bit WEP. Hex keys must be preceded by 0x and contain 5 or 13 hex pairs.

8 For **Network Key Index**, select the key you want to use for data transmission.

9 Save your settings.

Loading a Certificate

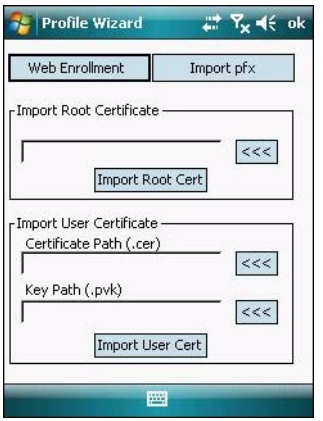
To use transport layer security (TLS) with WPA or 802.1x security, you need a unique client certificate on the CN50 and a trusted root certificate authority (CA) certificate. Certificates are pieces of cryptographic data that guarantee a public key is associated with a private key. They contain a public key and the entity name that owns the key. Each certificate is issued by a certificate authority.

To import a root certificate:

1 Tap the iConnect icon ( ) in the lower right corner of the Today screen. The iConnect pop-up menu appears.

2 Select **Tools > Wireless Settings**. The Profile Wizard appears.

3 Tap **Edit Selected Profile > Security tab > Get Certificates**.



Note: PFX encoded certificates are also supported. Tap the Import pfx button to import a PFX encoded certificate.

4 To import a root certificate:

   a Tap the <<< button next to the **Import Root Certificate** field to select the root certificate (DER-encoded .cer file) to import.
   b Click **Import Root Cert** to install the selected certificate.

5 To import a user certificate:

   a Tap the <<< button next to the **Certificate Path** field to select the user certificate (DER-encoded .cer file without the private key) to import.
   b Tap the <<< button next to the **Key Path** field to select the private key (.pvk file) which corresponds to the user certificate you selected.

   To import a certificate from an IAS server:

   a Tap **Web Enrollment**.
   b Enter the **User**, **Password**, and **Server** (IP address) to log into the server.
   c Tap **OK**. A dialog box appears asking if you want to load the root certificate.
   d Tap **OK**. The Enrollment Tool message box appears telling you that the certificate has been added.
   e Tap **OK** to close the message box.

Disabling Security

If you choose not to use security with your wireless network, you can disable it on the CN50. Intermec recommends that you always set security in your network.

To disable security:

1 Start Intermec Settings. For help, see **"Configuring the CN50" on page 28**.

2. Choose **Communications > 802.11 Radio > Security Choice** and select **Microsoft Security**. An alert box appears telling you that you must save your settings and warm boot the CN50 for the new security choice to take effect.
3. Choose **Yes**. The CN50 resets and starts with Microsoft Security as the Security Choice.
4. Start Intermec Settings.
5. Choose **Communications > 802.11 Radio > Microsoft Security**.
6. For **Network Authentication**, choose **Open**.
7. For **Data Encryption**, choose **Disabled**.
8. Tap **OK**. Your settings are saved.

Configuring the Phone

The CN50 supports two types of mobile wireless phone technology:

- CDMA
- UMTS

With the radio module installed in the CN50, you can send and receive telephone calls as well as transmit data through wide-area (WAN) cellular networks.

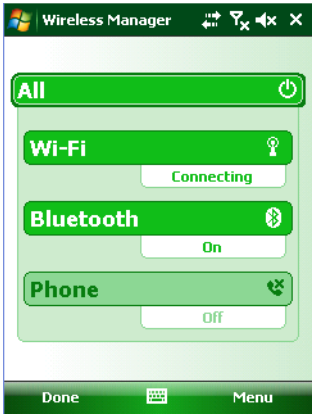
The CN50 provides a phone speaker, microphone, and speakerphone. It also supports Bluetooth headsets or hands-free kits. The factory default setting for the phone is disabled.

After you activate the phone with the wireless carrier of your choice, you can customize the features of the phone and network settings. For help, refer to the online help on your CN50.

Turning On the Phone Using the Wireless Manager

You can use the Wireless Manager to enable and disable Bluetooth, Wi-Fi, and the phone on your CN50.

1. Tap **Start > Settings > Connections tab > Wireless Manager**.



2 In the Wireless Manager, tap **Phone**. The phone turns on.

3 Tap **Menu > Phone Settings** to configure the phone. For help, see **"Activating the CDMA Phone."**.

4 Tap **Done** to close the Wireless Manager.

Activating the CDMA Phone

The CDMA WWAN radio module is configured at the factory. To activate your CDMA CN50 device, you need to contact the carrier you have chosen and set up accounts for each device. Use the following table to view the carriers that Intermec currently supports. If your carrier is not listed in the table, please contact Intermec product support to see if it is now supported.

Currently Supported Carriers

Country	Carrier
United States	Sprint & Verizon

The carrier will require the Mobile Equipment Identifier (MEID) to start the activation process. You can find the MEID:

- on a label located in the upper right corner of the battery compartment.
- on the outside of the CN50 shipping box.

The activation process is slightly different for each CDMA carrier. Your carrier sales contact and an Intermec representative can guide you through the process.

Values Required for CDMA Phone

The following table shows the carriers, the correct activation method to use, and the values that you need to activate your phone (if required).

Values Required for CDMA Activation

Carrier	Activation Method	Activation Values You Need
Sprint	Sprint Hands Free	MEID
Verizon	Dial *22899 or Activation Wizard	None - all parameters are automatically transferred wirelessly. You can also use the Activation Wizard with Verizon.

After you complete the activation process, the settings you enter are permanently stored in the CDMA module. Changing the OS or SSPB loads will not affect any of the settings or activation parameters stored in the WAN modem.

Starting the Activation Wizard

Use the following procedure to start the Activation Wizard.

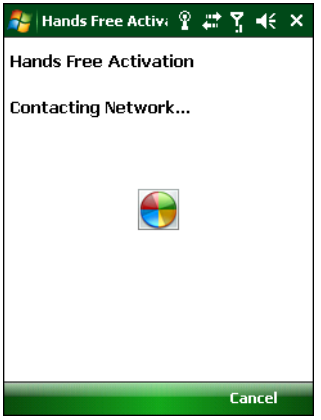
1. Tap **Start > Phone**.
2. In the Phone application, tap **Menu > Activation Wizard** from the bottom of the screen.

Activating the CN50 on Sprint

Use the following procedure to activate a CN50 programmed for Sprint. Before activating the CN50, you need to set the local date and time.

Note: The CN50 must be activated within 24 hours of contacting Sprint with the MEID.

1 In a strong signal area, turn on or reboot the CN50 to automatically start the Hands Free Activation wizard.



2 If activation is unsuccessful on the first attempt, the wizard will countdown from 60 seconds and try again. It will continue this process four times before it stops. At this point, you can reboot the CN50 to retry activation or contact Intermec Support.

Note: You can stop the activation process at anytime by tapping **Cancel**. The wizard will start the process again the next time you boot up the CN50.

3 The wizard states when the activation is successful. You can test the service by navigating to a web site or making a phone call.

Activating the CN50 on Verizon

Use the following procedures to activate a CN50 programmed for Verizon. The voice service must be activated before you can activate the data service.

Activating the Voice Service

Use the following procedure to activate voice service for Verizon.

1 Dial ***228** to initialize the Verizon programming.

2. Dial **1** when prompted to complete the process.

   This will activate the voice service on the CN50 and program the phone number into the cell phone.

3. A popup box will state when the programming is successful. When you close the popup box, the phone will reset.

Activating the Data Service

Use the following procedures to activate data service for Verizon.

1. Tap **Start > Settings > Connections > Connection icon**.
2. Tap **Manage existing connections**.
3. Select the **InternetPPP #777** and choose **Edit**.
4. Confirm that the Connection name is correct and then tap **Next**.
5. In the **Enter the Number to dial** box, enter `#777` and tap **Next**.
6. Enter your username: <10_digit_#>@vzw3g.com.

   Where <10_digit_#> is your actual 10 digit phone number. For example, 8005551212@vzw3g.com. To determine your phone number, go to the phone application and tap **Menu > Options**.
7. Enter the password: `vzw` (case-sensitive).
8. Tap **Finish**.

   You can test the data service by navigating to a web site using Internet Explorer.

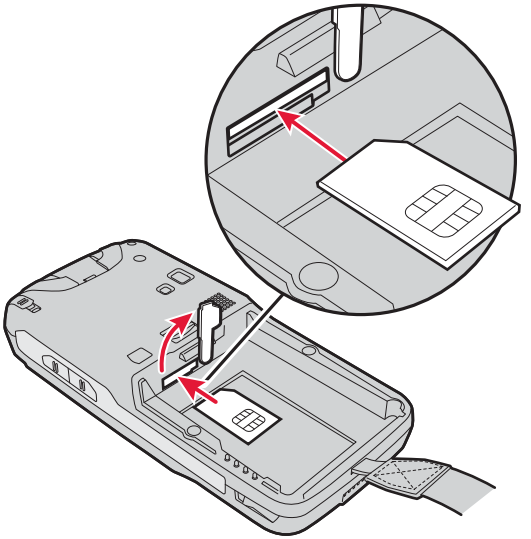
Activating the UMTS Phone

You use a SIM card to activate the UMTS/HSPA phone on the CN50. You can purchase the SIM card from your network provider. You insert the SIM card in the battery cavity on the back of the CN50.

To install the SIM card:

1. Press ⏻ to turn off the CN50.
2. Disconnect the handstrap from the top of the CN50.
3. Push forward on the battery release tab until the battery releases, and then lift the battery away from the CN50.

4 Swing the card access door clockwise to expose the SIM card and microSD card slots.



5 Insert the SIM card into the top slot until it clicks in place.

6 Close the card access door.

7 Insert the battery and press down until it clicks in place. Reconnect the handstrap.

8 Press ⏻ to turn on the CN50.

Making a Phone Call

After you activate your phone, you are ready to start making phone calls. The icon in the navigation bar will change to indicate that the radio is now active.

1 Tap **Start > Phone**.

2 Tap the keys to enter the telephone number you want to call.

3 Tap the **Talk** button.

Connecting to an ISP

You can connect to your Internet Service Provider (ISP), and use the connection to send and receive e-mail messages and view web pages. Get an ISP dial-up access telephone number, a user name, and a password from your ISP.

Once the CN50 is connected, you can:

- send and receive message by using Messaging (Outlook E-mail).
- visit web pages by using Internet Explorer Mobile.

Tap the **Help** icon at any time to view additional information for the wizard or the settings. To connect to an ISP:

1. Tap **Start > Settings > Connections tab > Connection**.
2. Under My ISP, tap **Add a new modem connection**.
3. Enter a name for the connection, such as "ISP Connection."
4. If using an external modem connected to your CN50 with a cable, select **Hayes Compatible on COM1** from the Select a modem drop-down list.
5. Tap **Next**.
6. Enter the access phone number and then tap **Next**.
7. Enter the **User name**, **Password**, and **Domain** (if provided by an ISP or your network administrator).
8. Tap **Finish**.
9. Tap the **Advanced** tab from the Connections screen and then tap **Dialing Rules**.
10. Select **Use dialing rules**, tap **ok** at the dialog box, and then tap **Edit**.
11. Specify your current phone type and then tap **ok** until you exit and return to the Settings page.

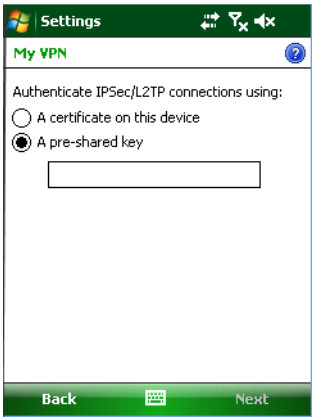
Connecting to a Network With a VPN Server

A VPN connection helps you to securely connect to servers, such as a corporate network, through the Internet. Before you can make a VPN connection, you will need the following items from your network administrator:

- User name
- Password
- Domain name
- TCP/IP settings
- Host name or IP address of the VPN server

To create a VPN server connection:

1. Tap **Start > Settings > Connections**.
2. Under My Work Network, tap **Add a new VPN server connection**.
3. In the **Name** field, enter a name for the connection, such as your company name.
4. In the **Host name / IP** field, enter the VPN server name or IP address.
5. Select the **VPN type** of authentication to use with your CN50. If you are not sure which option to choose, check with your network administrator.
6. Tap **Next**.
7. Select a way for the CN50 to authenticate the connection. If you select **A pre-shared key**, enter the key provided by your network administrator.



8 Click **Next**.

9 Enter the **User name**, **Password**, and **Domain** (if provided by an ISP or your network administrator).

10 Tap **Finish**.

3

Developing and Installing Applications

This chapter includes information on developing and installing applications for the CN50.

- **Developing Applications for the Computer**
- **Installing Applications on the CN50**
- **Updating the System Software**

Developing Applications for the Computer

Use the Intermec Resource Kits to develop applications to run on the CN50. The Resource Kits are a library of C++, .NET, Java, and web components grouped by functionality that you can use to create applications for the computer. The Resource Kits are part of the Intermec Developer Library (IDL), and can be downloaded from the Intermec web site at **www.intermec.com/idl**. For more information, see the **Intermec Developer Library (IDL) Resource Kit Developer's Guide**.

Packaging Your Application

For very simple applications, the executable file may be the only file you need to deploy. More typically, you will have a set of files to install. You can also copy a directory structure that contains the application, supporting files, DLLs, images, and data files.

Intermec recommends using .cab files to install your applications. The CN50 uses standard Windows Mobile .cab files and will install third-party .cab files.

Choosing a Target Location

You can have your .cab file place your application in any of these memory locations on the CN50:

- The ObjectStore.
- The optional microSD card. Depending on available disk space, you may want to consider installing your application files on the microSD card. Using a microSD card creates the Storage Card folder on the CN50.
- The non-volatile Flash File Store. Applications and data in the Flash File Store will persist through a clean boot.

Files copied to any of these locations are safe when you cold boot the computer as long as the AutoRun system is installed in the appropriate location. When you copy a .cab file to the \CabFiles folder, the folder automatically extracts that .cab file on every cold boot.For more information about AutoRun, see the **Intermec Developer Library (IDL) Resource Kit Developer's Guide**.

Installing Applications on the CN50

You can install files and applications on the computer by using:

- SmartSystems Foundation.
- Microsoft ActiveSync.
- Scan to Load hands-free software loading function of SmartSystems Foundation
- a microSD card.

For more information on installing applications, see the **Intermec Developer Library (IDL) Resource Kit Developer's Guide**.

Installing Applications Using SmartSystems Foundation Console

Your CN50 is SmartSystems-enabled, which lets you use the SmartSystems console to install Intermec applications on your CN50. The console is part of SmartSystems Foundation. For more information, go to the Intermec web site at **www.intermec.com/SmartSystems**.

To use SmartSystems console to install an application:

1. Download your application file from the Intermec web site and unzip it on your desktop PC.
2. Double-click the application file to install it. The application file should appear in the Software Vault.
3. From the SmartSystems console in the Software Vault, drag-and-drop the application onto each CN50 in your network, or drop the application on a group of computers contained in a folder.

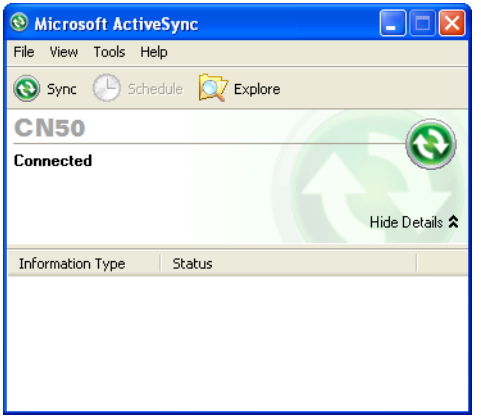
Installing Applications Using Microsoft ActiveSync

You can send applications from your PC to your CN50 using Microsoft ActiveSync. To download ActiveSync or the Windows Mobility Center, go to **www.windowsmobile.com/getstarted**.

To install an application on the computer using ActiveSync:

1. On your PC, copy the .cab file you want to download to your CN50.

2 Create an ActiveSync connection between your PC and CN50. For help, see **"Connecting to a PC" on page 31**.



3 Click **Explore**. The Mobile Device window opens.

4 Double-click **My Windows Mobile-Based Device**.

5 Navigate to the folder you want to copy the .cab file to, and paste the .cab file in the folder.

6 On your CN50, tap **Start > Programs > File Explorer >** and navigate to the location of the .cab file.

7 Tap the .cab file to install it.

Installing Applications Using a Scan-to-Connect Bar Code

You can use the Scan-to-Connect function in SmartSystems Foundation to create a bar code that loads software. The bar code contains the address of the server where the software to download is located. Once you scan the bar code, it finds the server, downloads the file, and installs it on the mobile computer. For more information on installing applications using a Scan-to-Connect bar code, see the SmartSystems Foundation Help.

Installing Applications Using a MicroSD Card

You can also use a microSD card to install applications.

1 Suspend the CN50 and remove the microSD card.

2. Insert the microSD card into a microSD adapter card and then place it in the storage card reader connected to your PC.
3. Copy your application file to the microSD card.
4. Remove the microSD card from the adapter card and insert it into the CN50.
5. On your CN50, navigate to the storage card folder and run your application.

Updating the System Software

The CN50 uses Image Update to update the operating system (OS) and system software. Image Update uses packages to allow for smaller and faster updates because the contents are stored in ROM. Packages persist through a cold or clean boot and cannot be removed by the end user. The Image Update process also provides strengthened security because all packages are signed.

Image Update packages (.pkg or .pks files) may contain elements such as DLLs, executable (.exe) files, and .cab files.

- You can update multiple computers at the same time using the SmartSystems Console. For help, see the next section, **"Updating Multiple Computers Using SmartSystems Console"**.
- You can update individual computers by transferring the packages to the CN50 and then installing them from the CN50.

If you are using SmartSystems to update the CN50, you can choose to send the updates silently. For more information, see **"Sending Silent Update Packages to the CN50" on page 71**.

Updating Multiple Computers Using SmartSystems Console

You can use the SmartSystems console to update the operating system or system software on your CN50. The console is part of SmartSystems Foundation and is available from the Intermec web site through the Intermec Developer Library (IDL). Before you can upgrade your CN50, you need:

- SmartSystems Foundation. To download SmartSystems Foundation, go to **www.intermec.com/SmartSystems** and click on the **Downloads** tab.

- the SmartSystems bundles you want to install. The SmartSystems bundle contains the Image Update package file. These SmartSystems bundles are available from the Intermec web site at **www.intermec.com/**. Go to **Support > Downloads**.

To update the CN50 using SmartSystems Foundation:

1. On your desktop PC, open the SmartSystems Foundation console.
2. Make sure the SmartSystems Foundation console and the computer are on the same subnet.
3. Make sure the computer is in a charge dock or communications dock, or that device power management is disabled.
4. Download the SmartSystems bundle to your PC.
5. Double-click the .exe file on your PC. An InstallShield application starts.
6. From the SmartSystems console, locate the bundle(s) to install.
7. Drag the application to each computer you want to update or to a group of computers in a folder. The SmartSystems console installs the update on your computers.
8. After the download is complete, your CN50 begins the update process and automatically performs a cold boot.

   The CN50 then boots into a special Update Loader mode where the computer has no connections and is completely unusable. This process can take anywhere from 30 seconds to 15 minutes depending on the update.

Note: The SmartSystems console indicates that your CN50 is offline, by displaying a red stop sign symbol, until the CN50 reboots and reconnects to the system.

9. After the update is complete, the CN50 cold boots again. When a confirmation dialog box appears requesting user input, dismiss it.

Sending Silent Update Packages to the CN50

If you want to automatically download and send update packages to your computers, you can purchase a SmartSystems AutoDeploy License. The silent updates do not require any user intervention and begin when you choose to have the update process start. SmartSystems Foundation users are notified when update packages are released so that they can download them and update their Intermec computers. For more information, see the SmartSystems Foundation Help.

Updating Individual Computers

You can download update packages from your PC to the CN50 using Microsoft ActiveSync or any other file transfer method you choose. If you need to download ActiveSync or the Windows Mobility Center, go to **www.windowsmobile.com/getstarted**.

To update an individual computer:

1. Download the Image Update packages you want to install from the Intermec web site at **www.intermec.com/**. Go to **Support > Downloads**.
2. Transfer the Image Update packages from your PC to the CN50.
3. On your CN50, tap **Start > Programs > File Explorer** and navigate to the location of the Image Update package.
4. Double-tap the package to install it. Your CN50 begins the update process and automatically performs a cold boot.

   The CN50 boots into a special Update Loader mode where the computer has no connections and is completely unusable. This process can take anywhere from 30 seconds to 15 minutes depending on the update.
5. After the update is complete, the CN50 cold boots again. When a confirmation dialog box appears requesting user input, dismiss it.

4

Troubleshooting and Maintaining the CN50

If you encounter any problems while using the CN50, look in this chapter to find a possible solution. You will also find information on routine maintenance. This chapter contains these sections:

- **Calling Product Support**
- **Troubleshooting the CN50**
- **Resetting the CN50**
- **Cleaning the CN50**

Calling Product Support

If you cannot find the answer to your problem in the "Troubleshooting the Computer" section, you can visit the Intermec technical knowledge base (Knowledge Central) at **intermec.custhelp.com** to review technical information or to request technical support. If you still need help after visiting Knowledge Central, you may need to call Product Support.

To talk to an Intermec Product Support representative, call:

1-800-755-5505

Before you can call Intermec Product Support, make sure you have the following information ready:

- Configuration number
- Serial number
- Firmware and software version numbers
- The language your custom application was written in and the tools you used to create it

Consult your application developer for information on your custom application.

Finding Your Configuration Number

To find the configuration number of your CN50:

- Look at the CN (configuration number) and SN (serial number) fields on the label inside the battery compartment.

Finding Your Software and Firmware Version Numbers

To find your mobile computer's software and firmware version number:

1. Tap **Start > Settings > About**.
2. Tap the **Packages** tab to find software version numbers.
3. Tap the **Build** tab to find the firmware version.

Troubleshooting the CN50

Use this section to troubleshoot some common problems you may experience with your CN50.

If you send the CN50 in for service, it is your responsibility to save the computer data and configuration. Intermec is responsible only for ensuring that the hardware matches the original configuration when repairing or replacing the computer.

Problems While Configuring the CN50

Problem	Solution
You cannot type a character on the keypad or you can only type uppercase or lowercase letters.	You may have locked a modifier key on the keypad. Press the necessary key sequence to unlock the key. For help, see **"Using the Keypad" on page 8**.
You press the **Power** key and nothing happens.	• Make sure the backlight is on. • Make sure you have a charged battery that is installed correctly. For help, see **"Charging the Battery" on page 4**. • The battery may be discharged. Replace the battery with a spare charged battery, or charge the battery. • Reset the CN50. For help, see **"Resetting the CN50" on page 79**.
You insert a microSD card and cannot find the SDMMC Disk folder on the CN50.	• The microSD card may not be installed correctly. Insert the microSD card as described in Steps 2 through 4 of **"Installing a microSD Card" on page 22**. • The microSD card may be damaged. Try another microSD card.
The Battery status LED is on.	• If the battery status LED is a steady green, the battery is more than 95% charged and computer is on a charger. • If the battery status LED is blinking red, then the battery is low. Replace or charge the battery. • If the battery status LED is a steady red, the main battery is on charge.

Problem	Solution
The computer appears to be locked up and you cannot enter data.	• Press the **Power** key to turn off the computer, then press the power key again to turn it on. • Cold boot the CN50. For help, see **"Cold Booting the CN50" on page 79**. • Try reloading the firmware. For help, see **"Updating the System Software" on page 69**. • If the computer does not boot or reset, contact your Intermec representative for help.
You tap the screen and nothing happens.	• Align your screen. For help, see **"Aligning the Touch Screen" on page 14**. • Make sure the CN50 is not locked.

Problems With Wireless Connectivity

Problem	Solution
The CN50 is connected to the network and you move to a new site to collect data. Your CN50 now shows you are not connected to the network.	Move closer to an access point or to a different location to reestablish communications until you reconnect with the network. Any data collected while out of range is transmitted over the network.
The CN50 appears to be connected to the network, but the host computer is not receiving any information from the CN50.	There may be a problem with the connection between the access point and the host computer. Check with network administrator or use your access point user's manual.

Problems While Configuring 802.1x Security

Problem	Solution
The CN50 indicates that it is authenticated, but it does not communicate with the host.	Make sure the CN50 IP address, host IP address, subnet mask, default router are configured for network.
The CN50 does not appear to be authenticating and a network connection icon does not appear on the toolbar.	• The CN50 may not be communicating with the access point. Make sure the CN50 network name matches the access point network name (SSID). • 802.1x security network may not be active. Make sure the server software is properly loaded and configured on the server PC. See server software documentation for help.

Problem	Solution
A network connection icon appears in the toolbar, but then disappears.	• The CN50 may not be communicating with the intended access point. Make sure the CN50 network name matches the access point network name. Default network name is "INTERMEC." • Access point may not be communicating with server. Ensure the access point is turned on, properly configured, and has 802.1x security enabled.
You are setting up multiple access points in a network, with different SSIDs, and the connection fails.	The CN50 does not save WEP key values when changing the SSID. Reenter the WEP key value after changing the SSID and save your changes. You should now be able to connect to the different access points.
The CN50 indicates it is not authenticated.	Make sure that: • the User Name and Password parameters on the CN50 must match the user name and password on authentication server. You may need to reenter the password on both the CN50, authentication server. • on your authentication server, the user and group are allowed and the group policy is allowed to log into the server. For help, see the documentation that shipped with your authentication server software. • the IP address and secret key for access point must match the IP address and secret key on the authentication server. You may need to reenter the IP address and secret key on both your access point and authentication server. • the authentication server software is running on the server PC.
You receive a message saying "The server certificate has expired or your system date is incorrect" after you perform a clean boot on the CN50.	Date and time are not saved when you perform a clean boot. Reenter the date and time, and then save your changes.

Problems Reading Bar Codes

Problem	Solution
You cannot see a red beam of light from the imager when you press the Scan button and aim the imager at a bar code label.	• You may be too far away from the bar code label. Try moving closer to the bar code label and scan it again. • You may be reading the bar code label "straight on." Change the reading angle and try again. • Move within two feet of a wall to test the effective scan of the scanner. For help scanning bar codes, see **"Reading Bar Codes" on page 18**.
When you release a **Scan** button or handle trigger, the **Good Read** light does not turn off.	The **Good Read** light will remain on if you configure the computer to use continuous/edge triggering. If you configure the computer for level triggering and the **Good Read** light remains on, there may be a problem. Press one of the **Scan** buttons or pull the trigger again without scanning a bar code label. If the light is still on, contact your local Intermec representative.
The scanner will not read the bar code label.	• Aim the scanner beam to cross entire bar code label in one pass. Vary the scanning angle. • Check the quality of the bar code label, Scan a bar code label that you know will scan. Compare the two bar code labels to see if the bar code quality is too low. You may need to replace the label that you cannot scan. • Make sure the bar code symbology is enabled and configured correctly. Use Intermec Settings to check the symbologies. Expand **Data Collection > Symbologies**beneath devices listed (scanner, virtual wedge) to check and enable symbologies, then scan the bar code label again. • Make sure the computer application is expecting input from a bar code. You may need to type this information instead.
The scanner does not read the bar code labels quickly, or the scanning beam seems to be faint or obscured.	The scanner window may be dirty. Clean the window with a solution of ammonia and water. Wipe dry. Do not allow abrasive material to touch the window.
You scan a valid bar code label to enter data for your application. The data decoded by the scan module does not match the data encoded in the bar code label.	The computer may have decoded the bar code label in a symbology other than the label's actual symbology. Try scanning the bar code label again. Make sure you scan the entire label.

Resetting the CN50

You rarely need to reset the computer. If the computer does not resume after pressing the **Power** button, or if the computer or an application locks up, you may need to reset the CN50. The CN50 uses the configuration currently saved in flash memory during the boot process. There are three ways to reset the CN50:

- Warm booting the CN50
- Cold booting the CN50
- Clean booting the CN50

Warm Booting the CN50

You may need to perform a warm boot to correct conditions where an application stops responding to the system.

To warm boot the computer:

- Go to **Start > Programs > Shut Down**.

  The computer systematically shuts down. Press the **Power** button to restart the computer, or it will restart automatically if external power is applied.

- Scan the following bar code:

Cold Booting the CN50

In some cases where the computer completely stops responding, it may be necessary to perform a cold boot. Because cold booting may result in data loss, use this method only if all other recovery methods have failed.

Note: Cold booting the CN50 does not guarantee that cached disk data will be saved, so transactional data may be lost during the reset. All other data, such as CN50 configuration and network settings, is preserved.

To cold boot your CN50:

1. Remove the battery pack from the CN50 and wait 30 seconds.
2. Reinsert the battery pack and press the **Power** button.

Clean Booting the CN50

If the CN50 seems to be locked up, try warm booting and then cold booting the computer. If neither method works, use a clean boot to get the computer up and running for further troubleshooting. When you clean boot, the CN50 only loads files and applications that are absolutely required by the operating system. A clean boot returns the CN50 to an "out of the box" or factory default state, so that you can run diagnostic tests to troubleshoot the normal boot processes:

The clean boot process erases the CN50 memory, including all applications and data files in the object store. To preserve applications through a clean boot, store them in the Flash File Store. For more information, see "Installing Applications on the CN50" on page 67.

To clean boot the computer using the mobile computer:

1. Remove the battery pack from the back of the CN50.
2. Reinsert the battery pack and press the **Power** button.
3. When the CN50 starts the boot process, simultaneously press ◄ and ► until the IPL Boot Configuration Menu appears on the screen.

```
IPL Boot Configuration Menu
---------------------------
(1) Force Image Update: No
(2) Force Clean Boot  : No
(3) Passive KITL      : No
(0) Continue with Boot...
```

4. Press 2 to select **Force Clean Boot** and then press 0 to select **Continue with Boot**.

   The CN50 executes the clean boot. This process takes a few minutes

5 When prompted, tap the screen to set up the CN50.

6 Follow the instructions to calibrate the screen.

Cleaning the CN50

To keep the CN50 in good working order, you may need to clean the imager window, color camera window, and the touch screen. Clean the windows and the touch screen as often as needed for the environment in which you are using the CN50. To clean the CN50, use a solution of one part ammonia and three parts water.

There are no user-serviceable parts inside the CN50. Opening the CN50 will void the warranty and may cause damage to the internal components.

To clean the image window, camera window, and touch screen:

1 Press the **Power** button to suspend the CN50.

2 Dip a clean cloth towel in the ammonia solution and wring out the excess.

3 Wipe off the imager window, camera lens, and flash area. Do not allow any abrasive material to touch these surfaces.

4 Wipe dry.

A

Specifications

Physical and Environmental Specifications

CN50 Physical Dimensions

Length	15.4 cm (6.05 in)
Width	7.4 cm (2.93 in)
Height	2.8 cm (1.09 in)
Weight	310 g (10.9 oz)

Power and Electrical Specifications

Battery type	Rechargeable Lithium-ion (Li-ion) batteries:
Battery capacity	1950 mAh (7.2 Wh) (AB24) 3900 mAh (14.4 Wh) (AB25)
Electrical rating	4,65 V, 3A
Backup battery	Super capacitor supplies 5 minutes bridge time

Environmental Specifications

Operating temperature	-10 °C to 50 °C (14 °F to 122 °F)
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Recharge temperature	0 °C to 45 °C (32 °F to 113 °F)
Humidity	5% to 95% non-condensing
Environmental rating	IP54 compliant

Touch Screen Specifications

Transflective TFT; QVGA color with touch panel; 240 x 320 pixels; 8.9 cm (3.5 in) diagonal active area; 5-level LED backlight control with settings.

Keypad Options

- Numeric keypad
- Alphanumeric keypad (QWERTY)

Bar Code Symbologies

The EA21and EA11 imager supports all of the bar code symbologies listed in the next table.

Symbology	
Australia Post	GS1 DataBar Omni-Directional
Aztec	Infomail
BPO	Interleaved 2 of 5
Canada Post	Japan Post
China Post	KoreanPost
Codabar	Matrix 2 of 5
Codablock A	Maxicode
Codablock F	Micro PDF417
Code 11	MSI
Code 39	PDF417
Code 93	Planet
Code 128/GS1-128	Plessey
DataMatrix	Postnet
Dutch Post	QR Code
EAN/UPC	Standard 2 of 5
EAN.UCC Composite	SwedenPost
GS1 DataBar Expanded	Telepen
GS1 DataBar Limited	TLC 39

CN50 Imager Reading Distances

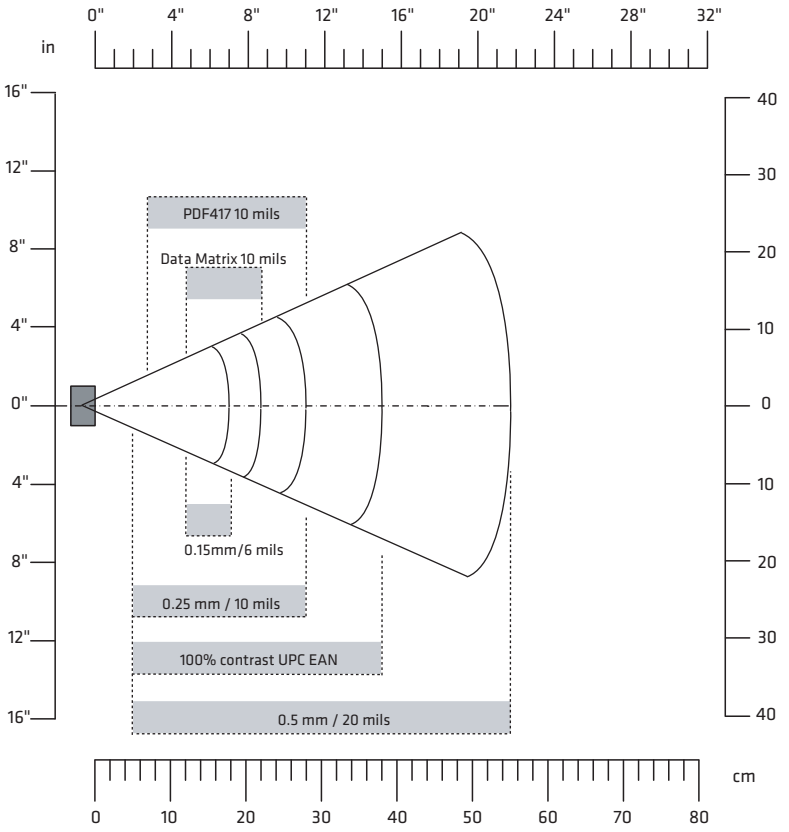
Typical reading distances are done in an office environment using office lights (4 lux). Minimum distances are measured in the dark (0 lux). Both reading distances are provided in respective scan engine integration guides. Contact your local Intermec representative for more information.

Below are the typical and minimum standard reading distances for the CN50 built with an EA21 or EA11 imager. When correctly mounted, and exit window reduces reading distances by about 4% for all scan engines.

Note: Minimum distances depend on the length of the bar code.

EA21 Area Imager Minimum Reading Distances

Minimum distances are measured in the dark (0 lux).

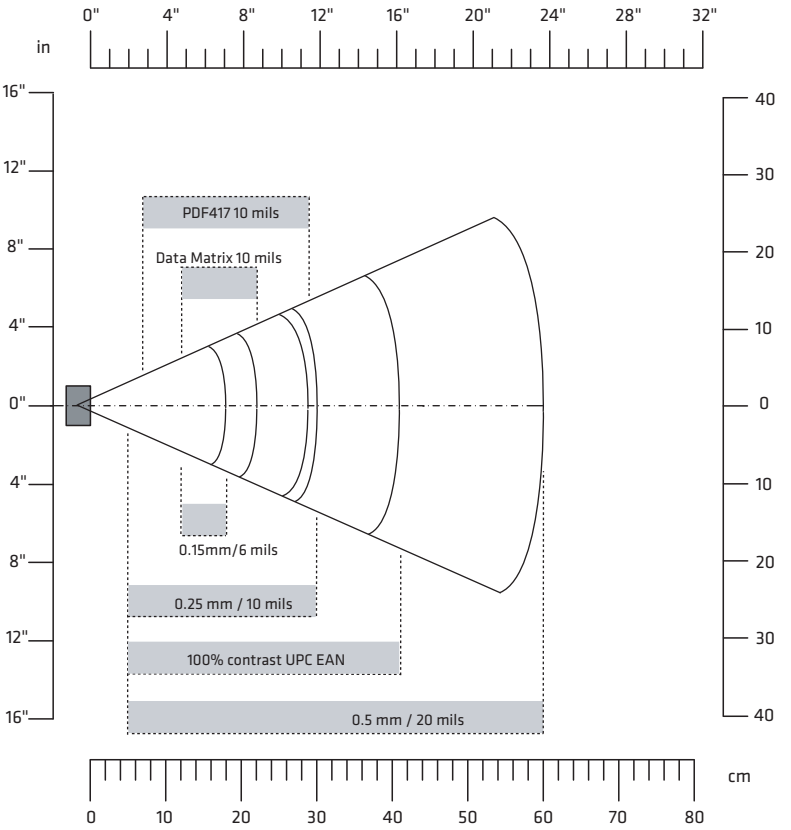


EA21 Minimum Reading Distances

Symbology	Density	Minimum Distance	Maximum Distance
Code 39	0.15 mm (6.0 mil)	12.0 cm (4.7 in)	18.0 cm (7.1 in)
	0.25 mm (10.0 mil)	5.0 cm (2.0 in)	30.0 cm (11.8 in)
	0.5 mm (20.0 mil)	5.0 cm (2.0 in)	60 cm (23.6 in)
	1.0 mm (40.0 mil)	9.0 cm (3.5 in)	95 cm (37.4 in)
UPC/EAN 100%	0.33 mm (13.0 mil)	5 cm (2 in)	38.0 cm (15.0 in)
Data Matrix	0.25 mm (10.0 mil)	12 cm (4.7 in)	22 cm (8.7 in)
	0.38 mm (15.0 mil)	8.0 cm (3.15 in)	34 cm (13.4 in)
PDF417	0.25 mm (10 mil)	7 cm (2.75 in)	28 cm (11.0 in)
	0.38 mm (15 mil)	7 cm (2.75 in)	40 cm (15.75 in)

EA21 Area Imager Typical Reading Distances

Typical distances are measured in an office environment (250 lux).

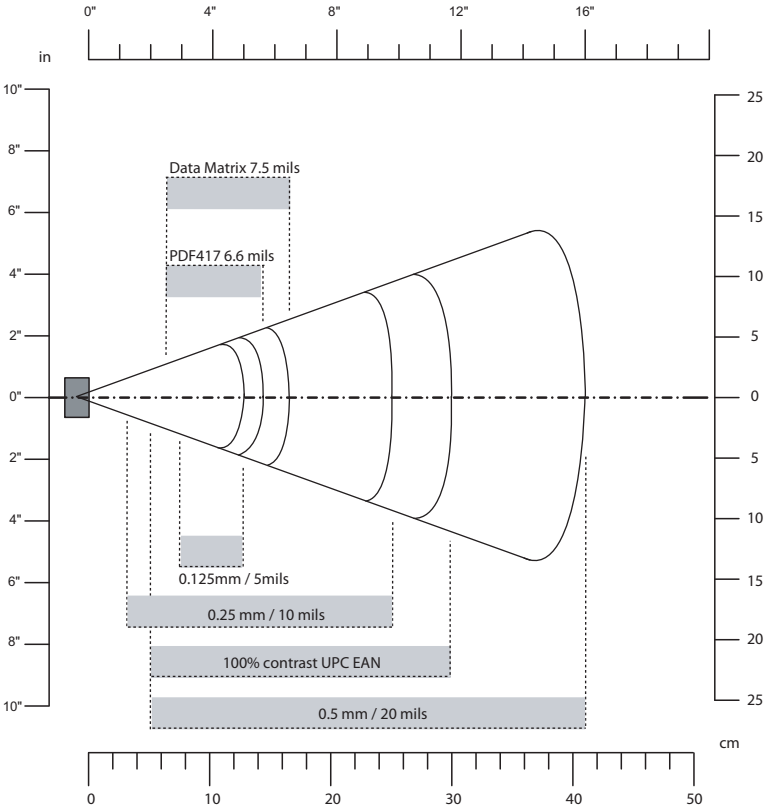


EA21 Typical Reading Distances

Symbology	Density	Minimum Distance	Maximum Distance
Code 39	0.15 mm (6.0 mil)	12.0 cm (4.7 in)	18.0 cm (7.1 in)
	0.25 mm (10.0 mil)	5.0 cm (2.0 in)	30.0 cm (11.8 in)
	0.5 mm (20.0 mil)	5.0 cm (2.0 in)	60 cm (23.6 in)
	1.0 mm (40.0 mil)	9.0 cm (3.5 in)	95 cm (37.4 in)
UPC/EAN 100%	0.33 mm (13.0 mil)	5 cm (2 in)	41.0 cm (16.1 in)
Data Matrix	0.25 mm (10.0 mil)	12 cm (4.7 in)	22 cm (8.7 in)
	0.38 mm (15.0 mil)	8.0 cm (3.15 in)	35 cm (13.8 in)
PDF417	0.25 mm (10 mil)	7 cm (2.75 in)	29 cm (11.4 in)
	0.38 mm (15 mil)	7 cm (2.75 in)	44 cm (17.3 in)

EA11 Area Imager Minimum Reading Distances

Minimum distances are measured in the dark (0 lux).



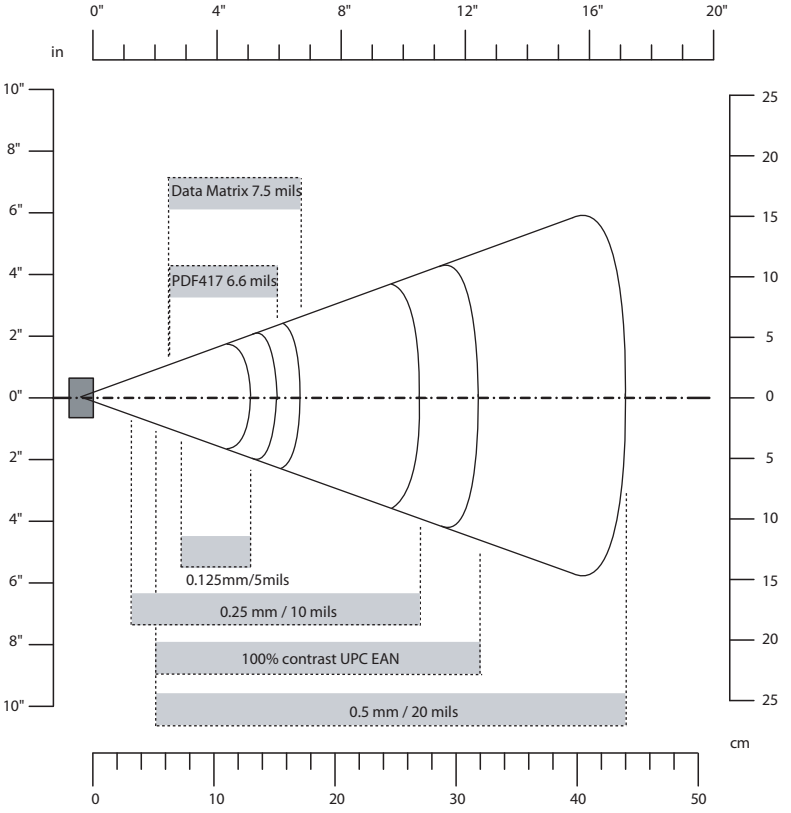
EA11 Minimum Reading Distances

Symbology	Density	Minimum Distance	Maximum Distance
Code 39	0.125 mm (5 mil) 0.20 mm (8 mil) 0.25 mm (10 mil) 0.50 mm (20 mil)	7.26 cm (2.86 in) 3.96 cm (1.56 in) 3.45 cm (1.36 in) 4.98 cm (1.96 in)	12.09 cm (4.76 in) 20.98 cm (8.26 in) 25.04 cm (9.86 in) 40.28 cm (15.86 in)
UPC/EAN	0.33 mm (13 mils)	4.98 cm (1.96 in)	29.62 cm (11.66 in)
Data Matrix	0.191 mm (7.5 mils) 0.254 mm (10 mils) 0.381 mm (15 mils)	3.71 cm (2.46 in) 5.98 cm (2.35 in) *	16.41 cm (6.46 in) 20.73 cm (8.16 in) 27.58 cm (10.86 in)

Symbology	Density	Minimum Distance	Maximum Distance
PDF417	0.168 mm (6.6 mils) 0.254 mm (10 mils) 0.381 mm (15 mils)	6.25 cm (2.46 in) 4.47 cm (1.76 in) 4.98 cm (1.96 in)	13.87 cm (5.46 in) 21.74 cm (8.56 in) 33.43 cm (13.16 in)

EA11 Area Imager Typical Reading Distances

Typical distances are measured in an office environment (250 lux).



EA11 Typical Reading Distances

Symbology	Density	Minimum Distance	Maximum Distance
Code 39	0.125 mm (5 mil) 0.20 mm (8 mil) 0.25 mm (10 mil) 0.50 mm (20 mil) 1 mm (40 mil)	7.2 cm (2.8 in) 3.8 cm (1.5 in) 3.4 cm (1.3 in) 5 cm (2 in) 8 cm (3.1 in)	13.1 cm (5.1 in) 22.5 cm (8.8 in) 27 cm (10.5 in) 44 cm (17.2 in) 83 cm (32.4 in)
UPC/EAN	0.33 mm (13 mils)	5 cm (2 in)	32 cm (12.5 in)
Data Matrix	0.191 mm (7.5 mils) 0.254 mm (10 mils) 0.381 mm (15 mils)	6.3 cm (2.5 in) 4.8 cm (1.9 in) *	17.3 cm (6.7 in) 22 cm (8.6 in) 29 cm (11.3 in)
PDF417	0.168 mm (6.6 mils) 0.254 mm (10 mils) 0.381 mm (15 mils)	6.25 cm (2.46 in) 4.5 cm (1.8 in) 4 cm (1.6 in)	15.4 cm (6 in) 23 cm (9 in) 37 cm (14.4 in)

CN50 Docking Connector Specifications

The CN50 has an array of six pin surface contacts that provide USB "On the Go" (OTG) connectivity and charge power.

CN50 Docking Connector Specification

Pin Number	Singla Nam	Description
1	VEXT	Computer power (4.6 V @ 1.5 A)
2	OTG_ID	Identification pin
3	OTG_VBUS	VBUS (5V @ 100 mA max)
4	OTG_USB_D-	USB data signal
5	OTG_USB_D+	USB data signal
6	GND	Ground (power return)

Accessories

Battery (AB24, AB25)

The AB24 standard battery and AB25 extended battery provide main power to the CN50.

AC Power Adapter (AE37)

The CN50 AC Power Adapter provides a connection for external AC power to theCN50. To use this adapter, you need to purchase a country-specific power cord.

Quad Battery Charger (AC21)

Use the quad battery charger to charge up to four battery packs.

Single Dock (AD27)

Use the single dock to hold a mobile computer with its battery installed, charge a spare battery pack, charge the main battery pack, and provide power to the mobile computer. The dock has USB host and client connectors. Optional modules are available to convert the USB host to Ethernet or to a landline modem.

Multidock (AD24)

Use the multidock to hold up to four mobile computers with batteries installed. The multidock charges the batteries and provides power and Ethernet connections to each mobile computer.

Charge-Only Multidock (AD23)

Use the charge-only multidock to hold up to four mobile computers with batteries installed, charge batteries, and provide power to the mobile computers.

Vehicle Docks (AV6 and AV9)

Use the vehicle docks to hold and charge the mobile computers while using them on a vehicle.

Magnetic Stripe Reader (AR9)

Use the magnetic stripe reader if you need magnetic stripe reading capability on the mobile computer.

B

Default Settings

Default Configuration

The following tables list the default values of the configuration commands supported on the CN50. If you restore to factory default settings, the CN50 uses these values.

The commands are grouped by function and reflect the organization of Intermec Settings. You can configure your CN50 with Intermec Settings from the SmartSystems Foundation console. For detailed information on most of the commands, see the **Intermec Settings Command Reference Manual**.

Data Collection

Symbology Settings

Symbology	Default Value
AustraliaPost	Disable
Aztec	Disable
BPO	Disable
CanadaPost	Disable
ChinaPost	Disable
Codabar	Disable
Codablock A	Disable
Codablock F	Disable
Code 11	Disable
Code 39	Enable
Code 93	Disable
Code 128/GS1-128	Enable
DataMatrix	Enable
DutchPost	Disable
EAN/UPC	Enable UPC A, UPC E, EAN 8, EAN 13
GS1 Composite	Disable
GS1 DataBar Expanded	Disable
GS1 DataBar Limited	Disable
GS1 DataBar Omnidirectional	Disable
Infomail	Disable

Symbology	Default Value
Interleaved 2 of 5	Disable
JapanPost	Disable
KoreanPost	Disable
Matrix 2 of 5	Disable
Maxicode	Disable
Micro PDF417	Disable
MSI	Disable
PDF417	Enable
Planet	Disable
Plessey	Disable
Postnet	Disable
QR Code	Disable
Standard 2 of 5	Disable
SwedenPost	Disable
Telepen	Disable
TLC 39	Disable

Symbology Option Settings

Symbology Option	Default Value
Preamble	None (disabled)
Postamble	None (disabled)
Global Symbology ID	Disable
Multicode	Disable

Imager Settings

Imager Setting	Default Value
Predefined Modes	1D and 2D Standard
Signature Image Capture	Disable
Document Imaging	Disable

Decode Security Settings

Decode Security Setting	Default Value
Consecutive Data Validation	0
Identical Consecutive Timeout	300 ms
Different Consecutive Timeout	0
Center Decoding	Disable
Center Decoding Tolerance	0

Communications

Communication Settings

Communication Settings	Default Value
Device Name	CN50xxxxxxxxxx

Bluetooth Settings

Bluetooth Settings	Default Value
Bluetooth Power	Off
Bluetooth Discoverable	Disable
Bluetooth Connectable	Disable

802.11 Radio Settings

802.11 Radio Settings	Default Value
Allow Security Changes	Enable
Radio Measurement	0
Radio Enabled	Enable

Ethernet Adapter Settings

IP Settings	Default Value
DHCP	Enable
DHCP Client Identifier	Null
Primary DNS	0.0.0.0
Secondary DNS	0.0.0.0
Primary WINS	0.0.0.0
Secondary WINS	0.0.0.0

Certificates Settings

Certificates Settings	Default Value
Import Root Certificates	False
Import User Certificates	False
Import Pac Files	False

Ethernet Adapter IP Settings

Ethernet Adapter IP Settings	Default Value
DHCP	Enable
DHCP Client Identifier	Null
Primary DNS	Null
Secondary DNS	Null
Primary WINS	Null
Secondary WINS	Null

Device Settings

Device Settings	Default Value
Date	Null

Device Settings	Default Value
Time	Null
Adjust for Daylight Time	Disable
Good Read Beep	One Beep
Beeper Volume	Medium

C

Keypads and Keystrokes

Standard Characters

Use the following tables to learn how to enter standard and other available characters and functions with the keypad. If there is no sequence of keystrokes for a particular character or function, it is only available through the soft input panel (SIP), which can be accessed by tapping the keyboard icon on the touch screen.

Alphanumeric Characters

Character	Numeric Keypad	QWERTY Keypad
a	Blue 2	A
b	Blue 2 2	B
c	Blue 2 2 2	C
d	Blue 3	D
e	Blue 3 3	E
f	Blue 3 3 3	F
g	Blue 4	G
h	Blue 4 4	H
i	Blue 4 4 4	I
j	Blue 5	J
k	Blue 5 5	K
l	Blue 5 5 5	L
m	Blue 6	M
n	Blue 6 6	N
o	Blue 6 6 6	O
p	Blue 7	P

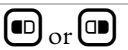
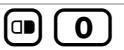
Character	Numeric Keypad	QWERTY Keypad
q	◨ 7 7	Q
r	◨ 7 7 7	R
s	◨ 7 7 7 7	S
t	◨ 8	T
u	◨ 8 8	U
v	◨ 8 8 8	V
w	◨ 9	W
x	◨ 9 9	X
y	◨ 9 9 9	Y
z	◨ 9 9 9 9	Z
A	◨ 1 2	⇧ A
B	◨ 1 2 2	⇧ B
C	◨ 1 2 2 2	⇧ C
D	◨ 1 3	⇧ D
E	◨ 1 3 3	⇧ E
F	◨ 1 3 3 3	⇧ F
G	◨ 1 4	⇧ G
H	◨ 1 4 4	⇧ H
I	◨ 1 4 4 4	⇧ I
J	◨ 1 5	⇧ J
K	◨ 1 5 5	⇧ K

Character	Numeric Keypad	QWERTY Keypad
L	Blue 1 5 5 5	Shift L
M	Blue 1 6	Shift M
N	Blue 1 6 6	Shift N
O	Blue 1 6 6 6	Shift O
P	Blue 1 7	Shift P
Q	Blue 1 7 7	Shift Q
R	Blue 1 7 7 7	Shift R
S	Blue 1 7 7 7 7	Shift S
T	Blue 1 8	Shift T
U	Blue 1 8 8	Shift U
V	Blue 1 8 8 8	Shift V
W	Blue 1 9	Shift W
X	Blue 1 9 9	Shift X
Y	Blue 1 9 9 9	Shift Y
Z	Blue 1 9 9 9 9	Shift Z
0	0	Orange Light
1	1	Orange Y
2	2	Orange U
3	3	Orange I
4	4	Orange H
5	5	Orange J

Character	Numeric Keypad	QWERTY Keypad
6	6	D K
7	7	D B
8	8	D N
9	9	D M

Characters and Functions

To Enter	Numeric Keypad	QWERTY Keypad
@ (at symbol)	N/A	D Q
& (ampersand)	N/A	D S
* (asterisk)	N/A	D C
: (colon)	N/A	D D
, (comma)	N/A	D X
$ (dollar)	N/A	D E
! (exclamation)	N/A	D O
- (hyphen)	D *	D G
% (percent)	N/A	D R
. (period)	.	.
+ (plus)	D #	D T
# (pound)	#	D V
? (question mark)	N/A	D A
‘ (apostrophe)	N/A	D Z
Forward Tab	⇆	⇆

To Enter	Numeric Keypad	QWERTY Keypad
Backspace		
Up Arrow		
Down Arrow		
Left Arrow		
Right Arrow		
CapsLock		
Enter		
ok		
Shift	 or	
Space		
Start (Windows)		
Esc		
Backlight		
Talk		
End call		

D

Imager Configuration Bar Codes

Imager Configuration Bar Codes

Use the following bar codes to quickly configure the CN50 imager. These bar codes allow you to enable or disable symbologies, reset to factory defaults, and set predefined imager modes.

If you need to create a bar code for a specific setup, please download a free copy of EasySet from the CN50 page on the Intermec web site at **www.intermec.com**.

Basic Configuration Bar Codes

Command	Bar Code
Disable all symbologies	
Reset to Factory Defaults	
Postamble with Carriage Return and Line Feed	
Shut down and Reboot	

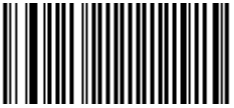
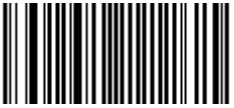
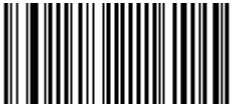
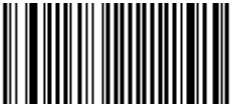
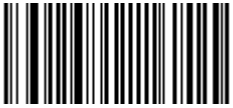
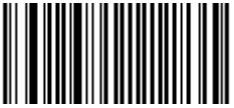
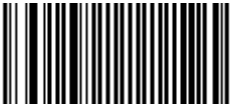
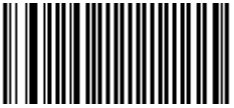
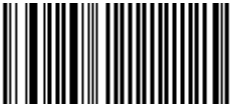
Imager Predefined Modes

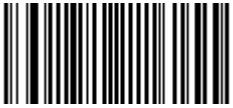
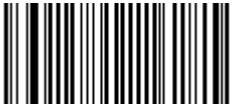
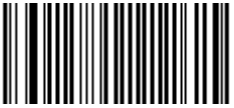
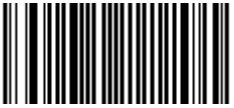
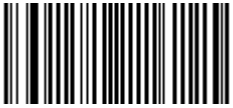
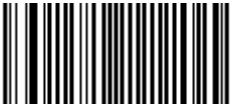
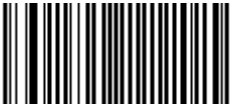
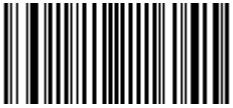
Command	Bar Code
1D codes only	
Standard 1D and 2D codes	

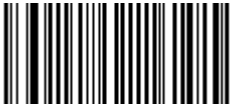
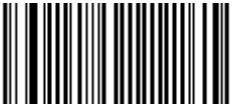
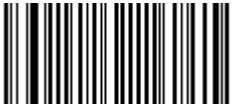
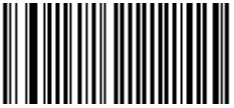
Command	Bar Code
1D and 2D codes bright environment	
1D and 2D codes with reflective surface	

Symbology Bar Codes

Symbology	Enable Bar Code	Disable Bar Code
AustraliaPost		
Aztec		
BPO		
CanadaPost		
Codabar		
Code 11		
Code 39		

Symbology	Enable Bar Code	Disable Bar Code
Code 93		
Code 128		
DataMatrix		
DutchPost		
EAN 8		
EAN 13		
GS1 128		
Interleaved 2 of 5		
JapanPost		
Matrix 2 of 5		

Symbology	Enable Bar Code	Disable Bar Code
MaxiCode		
Micro PDF417		
MSI Code		
PDF417		
Planet		
Plessey Code		
Postnet		
QR Code		
Standard 2 of 5		
Telepen		

Symbology	Enable Bar Code	Disable Bar Code
TLC 39		
UPC-A		
UPC-E		
UPC-E1		

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